ST. MARY'S UNIVERSTY

SCHOOL OF GRADUTE STUDIES

Department of Project Management

ASSESSMENT OF QUALITY OF EDUCATION AT THE SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING-AAIT USING MODIFIED HEQAM-KAU MODEL

BY
ABEL TEFERA

ADVISOR: TAYE AMOGNE (PhD)

DECEMBER 2021

ADDIS ABABA, ETHIOPIA

ASSESSMENT OF QUALITY OF EDUCATION AT THE SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING-AAIT USING MODIFIED HEQAM-KAU MODEL

BY:
ABEL TEFERA

ADVISOR: TAYE AMOGNE (PhD)

A THESIS SUBMITTED TO SAINT MARY'S UNIVERSITY FOR PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR AWARD OF MASTER OF ART IN PROJECT MANAGEMENT

DECEMBER 2021
ADDIS ABABA, ETHIOPIA

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

ASSESSMENT OF QUALITY OF EDUCATION AT THE SCHOOL OF CIVIL AND ENVIRONMENTAL ENGINEERING-AAIT USING MODIFIED HEQAM-KAU MODEL

BY:

ABEL TEFERA

APPROVED BY BOARD OF EXAMINERS

_____	_____
DEAN, GRADUATE STUDIES	**SIGNATURE**
TAYE AMOGNE, (PhD)	_____
ADVISOR	**SIGNATURE**
_____	_____
EXTERNAL EXAMINER	**SIGNATURE**
_____	_____
INTERNAL EXAMINER	**SIGNATURE**

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of **TAYE AMOGNE (PhD).** All sources of material used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for earning any degree.

ABEL TEFERA _____

Name **Signature**

St. Mary's University, Addis Ababa **December 2021**

ENDORSEMENT

This thesis has been submitted to St. Mary's University School of Graduate Studies for examination with my approval as a university advisor

TAYE AMOGNE (PhD) _____

Advisor Signature
St. Mary's University, Addis Ababa December, 2021

List of Abbreviations

AAiT	Addis Ababa Institute of Technology
AAU	Addis Ababa University
FDRE	Federal democratic republic of Ethiopia
HEI	Higher Education Institutions
HEP	Higher Education Proclamation
HEQAM	Higher Education Quality Assessment Model
HERQA	Higher Education Relevance and Quality Agency
KAU	King Abdulaziz University
MoE	Ministry of Education
QA	Quality Assurance
SCEE	School of Civil & Environmental Engineering
UNESCO	United Nations Educational, Scientific and Cultural Organization
EPRD	Educational Planning and Research Division
ENAEE	European Network for Accreditation of Engineering Education
AU-NEPAD	African Union – The New Partnership for African Development
WIPO	World Intellectual Property Office

ACKNOWLEDGEMENT

First and foremost, I wish to avail myself of this opportunity to express a sense of gratitude and debt to the one above all of us, the Omnipresent God, for answering my prayers and giving me the strength to plod on despite the various difficult scenarios.

This thesis work would not have been possible if it were not for the patience, guidance and unwavering support of my advisor, **Taye Amogne (PhD),** who was always a phone call away from me. I also forward my sincere gratitude to several individuals who in one way or another contributed to my work and extended their valuable assistance.

Learning is a never-ending process, which takes a lot of time and effort. So does reviewing and writing a literature. I offer my heartfelt thanks to my wife, kids and my mother for the support and morale that they were giving me while conducting this research.

Table of Contents

List of Tables

List of Figures

ABSTRACT

The purpose of this study was to assess the quality of education at the school of civil and environmental engineering. It investigates the education quality by using a modified HEQAM-KAU model which constitutes 7 core variables namely Curriculum, Academic Staff, Career prospect, Infrastructure, E-Services, Library services, Administrative services. The study engaged a combination of qualitative and quantitative approach research method using closed questionnaire and semi structured interview. The research employed the descriptive type of research design due to the reason that this research method describes the characteristic of the phenomenon studied. Quantitative and Qualitative data were collected from 125 students and 18 instructors. The model used in this study revealed that the quality of education of Civil Engineering undergraduate program at the school of civil and environmental engineering has found to be medium from the perspective of the sample population participated in the study. Based on individual analysis of main variables at the core of the assessment model, the major factors that are hindrance to quality of education were found to be as poor administrative services, inferior E-services and gloomy career prospect. As the findings indicate, there is a strong need to improve upon the institution's links with business through internship programs etc. to increase employment opportunities. It is also suggested that University-Industry linkage office shall be led by a qualified career professional specializing in the area as opposed to be being offered to academic staff as an administrative position. Similar suggestion were forwarded regarding the Office of External Relations, which, on paper, is tasked with sowing fruitful relations with other academic and research establishments in order to facilitate opportunities to continue studies abroad. Finally, it was recommended that the school should form an internal quality assessment unit and plan periodic quality assessments on its own as part of improving the quality assurance efforts.

***Key words**: Higher Education, Quality, Quality Assessment, HEQAM-KAU*

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Education is a process by which academicians transmit their experiences, new findings, and values they accumulated over the years, in the struggle for survival and development through generations. Education enables individuals and society to make all-rounded participation in the development process by acquiring knowledge, ability, skills and attitudes. One of the aims of education is to strengthen individuals' and society's problem-solving capacity, ability and culture starting from basic education at all levels. Education enables man to identify harmful traditions and replace them by useful ones. It helps man to improve, change, as well as develop and conserve his environment for the purpose of an all-rounded development by diffusing science and technology into the society. Education also plays a role in the promotion of respect for human rights and democratic values, creating the condition for equality, mutual understanding and cooperation among people. Education does not operate in isolation; rather it has to be integrated with research, practice and development to contribute towards to all rounded development of society (FDR GoE, 1994). According to UNESCO (2010), higher education is indispensable for the effective and efficient creation, dissemination, and application of knowledge and for building institutional, professional, and technological capacity.

Quality has become one of the major issues of higher education institutes. In the teaching and learning process all stakeholders, government students and their families, employers and the fund provoders are demanding value for what they have paid and need efficiency through quality teaching. Yirdaw (2016) describes the key factors that determine the quality of education categorized as 10 key individual factors: (a) teaching and learning process; (b)organizational structure, policy, and procedure; (c) management services; (d) attributes related to instructors; (e) attributes related to students; (f) leadership; (g) resources; (h) faculty; (I) administrative staff; and (j) infrastructure.

The Government of Ethiopia (GoE) has demonstrated commitment to expand higher education science and technology (S&T) programs to spur and support its growth and transformation agenda. Ethiopia has made a tremendous advance in access to higher education over the past decade. This rapid expansion, however, has raised concerns about quality. Many students are

entering universities with a low level of academic preparation and a weak mastery of English. Qualified faculty are in short supply, especially in science and technology (World Bank Group, 2017).

Ethiopia has shown remarkable and consistent double-digit economic growth for more than a decade. The country has also been embarking on the second Growth and Transformation Plan (GTP II), which has been on implementation since 2015/16 up to 2019/20, with the expectation to realize the vision of transforming the country to a middle-income country by 2025; primarily through the development of high quality professionals in various engineering technology and science fields. To realize this, the Ethiopian government has introduced 70/30 higher education policy and put into practice. To respond to this, new higher education institutions have been established massively investing on expansion of the campuses setup and student enrolment aimed at producing knowledgeable, skillful and attitudinally matured graduates who can address the developmental needs and challenges of the country. However, nowadays, improving quality of education while accommodating the increase in admissions is becoming the current theme. Keeping quality of the education and the institutes while increasing enrolments has been the dilemma for all higher education institutions. (Sileshi, 2016)

In most recent times, few institutions have provided education to equip students with the required skilled in the field of Engineering, Medicine, and Education etc. One of the institutions is the Addis Ababa University, which was established in 1950. The last 30 years history of civil engineering in AAiT/AAU shows Civil Engineering had been the prior choice among the brightest students joining the university. The last two years, however, has shown significant changes in civil engineering preference among the pre-engineering students. According to official records by the School of Civil & Environmental Engineering, the number of students that joined is 300, 200, 72 and 51 in the years of 2015, 2016, 2017, 2018 and 2019 respectively. It is highly likely that the choice dwindles, in response to the recent lack of job opportunity in the industry.

The school also recognize the effect of the quality of education delivered during the course of their education in the institute, as part of the problem. In part, this has been due to students' exposure to the real-world problems, weakness in computational analysis & design and lesser recognition of the advantages of civil engineering profession in various sector of the civil society. The less quality of education has also been driven by focus on delivering the course content (instructor centered) rather than student-centered learning and teaching approaches. Hence, an assessment of the quality of Engineering Education, particularly Civil and

environmental Engineering education becomes of paramount importance. This research shall examine validity of these aforementioned factors through quality assessment of civil engineering education at SCEE-AAiT.

1.2 Statement of the Problem

Gibbs (2010) provides the so-called '3P' dimensions of quality to be used by higher education practitioners and policy makers. This rests on a set of indicators, presage variables (staff-student ratio, quality of teaching staff, funding and quality of students). Process variables (class size; class contact hours, independent study hours and total hours; the quality of teaching; the effects of the research environment; the level of intellectual challenge; formative assessment and feedback; reputation; peer quality ratings; student support; and quality enhancement processes). Product variables (student performance and degree classifications; student retention and persistence; and employability and graduate destinations).

Notable researches have been conducted in the area of quality assurance in Ethiopian higher education such by those (Tadesse, 2014), (Tamrat, 2020), (Addamu, 2012), (Akalu, 2014) and (Saketa, 2014). However, there is a massive gap in researches addressing quality assessment of higher education institutions in Ethiopia especially for that of governmental ones. The most prominent study by L. Geleto Wariyo (2019) attempts to analyze the Ethiopian Higher Education quality assessment model in line with another world. As highlighted by Wariyo (2019), "*there is a shortage of diverse research findings that use a variety of models to assess the quality of higher education"* Moreover, the studies lack specificity and potential for practical implementation. This research will put a dent in this massive gap by producing targeted assessment output, which can directly be used by the School of Civil and Environmental Engineering as an input for its efforts to alleviate the level of education quality.

There has been a tacit consensus that as government pressures for more expansion; universities struggled with dwindling per student budgetary allocations, shortage of qualified staff, and inadequate supply of much needed inputs and the erosion of their autonomy. This line of thought is also corroborated by researches such as (Akalu, 2014). Now that undergraduate admissions have stabilized (in some cases even dramatically decreased), this researcher believes that it is time to question this tacit consensus. This study on the School of Civil and Environmental Engineering, AAiT-AAU will shed light on the matter by zeroing in on the specific stream of Civil Engineering undergraduate studies.

1.3 Research Questions

Based on the above stated problems, the study shall address the following research questions.

1. What is the current level of quality of education at the School of Civil and Environmental Engineering, AAiT-AAU?
2. What are the major hindrances to quality of education at the School of Civil and Environmental Engineering, AAiT-AAU?

1.4 Objectives of the Study

1.4.1 General objective

This research aims to assess the current state of the quality of education of the undergraduate program at the School of Civil and Environmental Engineering.

1.4.2 Specific objectives

- To assess the current level of quality of education at the School of Civil and Environmental Engineering, AAiT-AAU
- To determine the major hindrances to quality of education at the School of Civil and Environmental Engineering, AAiT-AAU

1.5 Significance of the Study

The main rationale of this study is to assess the quality of education. Therefore, the outcome of this study mainly benefits institute of the undergraduate program of Civil and Environmental engineering and for the researcher itself. Findings of this study would help to make concrete recommendations to of the undergraduate program of Civil and Environmental engineering, which helps the institute to achieve its goal at large.

In line with the above facts, it is believed that, the result of this study provides adequate information for the institute regarding to the quality of education. In addition, it also visualizes that the findings of this study would help the institute to understand and know how to address issues related to quality of education. Lastly, the study will serve as reference material for other researchers who conduct research in this area.

1.6 Scope of the Study

The study focused on the assessment of the quality of undergraduate Civil Engineering education in AAiT-AAU through the assessment of inputs and processes in the education system.

The scope of this study is confined to the undergraduate program in civil and environmental engineering at the Addis Ababa institute of Technology. The study will not address issues related to budgeting and finance such as research funding, appropriateness of human resource wages and appropriateness of facility funding. The research will not investigate issues related to academic autonomy and educational policy of higher institutions.

1.7 Limitation of the study

Every research paper has its own limitations which one-way or another affects the outcome and findings. This shows that limitation is inevitable in a research and elsewhere. Therefore, in this study the researcher has identified the following limitations.

- This study is limited to data obtained from students and instructors at the school of Civil and Environmental Engineering.
- It focus is on addressing its own research objectives.
- The outcomes and findings of the research only represent the sample population involved in this study and cannot be used for the general population of the Institute.
- Refusal of the schools administrative staffs and instructors to be recorded during the Interview sessions, which led the researcher to take notes while interviewing. Due to this, some of the data's transcribed from the interview might not have been fully captured and cross-checked from the original source.

1.8 Organization of the study

This study consists of five chapters. The first chapter presents the introductory part with the background of the study, statement of the problem, research questions, research objective, and significance of the study, scope of the study, limitation of the study and organization of study. The second chapter reviews previous literatures related to the study. The third chapter presents methodology of the study. The fourth chapter consists of the data analysis and presentation section and the last chapter is chapter five that includes the summary, conclusion and recommendations.

CHAPTER TWO
LITREATURE REVIEW

Introduction

This section reviews relevant literatures written by different authors that are in line with the study topic. The first part is theoretical review, which introduces definitions, key concepts, and assumptions. The second part is the empirical literature review of similar researches.

2.1 Theoretical Literature Review

2.1.1 Quality

According to ISO 9001:2015, Quality is degree to which a set of inherent characteristics of an object fulfill requirements. Based on a thorough literature review by Lagrosen et al., (2004) as cited by Wariyo (2019) have classified the definitions of quality into five major groups: (1) Transcendent definitions, subjective and personal definitions, e.g., beauty and love. (2) Product-based definitions; viewed it as a measurable variable; (3) User-based definitions; a means for customer satisfaction. (4) Manufacturing-based definitions; conformance to requirements and specifications. (5) Value-based definitions; viewed in relation to costs.

2.1.2 Quality Audit

According to HERQA (2006), quality audit is a process of review of the university's core process by HERQA or other agency to check that quality and relevance of the programs, curricula, staff infrastructure, and other elements meet the stated objectives and aims of the University and to determine the level of the University's system of quality care and accountability. Craft (2005) defined quality audit as an assessment by a group external to a university to verify that the quality assurance and quality control processes are appropriate and working properly.

Quality Audit is also the process of examining institutional procedures for assuring quality and standards and whether the arrangements are implemented effectively and achieve stated objectives (Vlasceanu, 2009).

2.1.3 Quality Assurance

An all-embracing term that covers policies, processes, and actions through which the quality of higher education is upheld and advanced (Harvey & Green, 1993; Vlăsceanu, Grünberg, & Pârlea, 2007). For Harman and Meek (2000), quality assurance can be conceptualized as a systematic management and assessment procedure that is adopted by HEIs and higher education systems to monitor performance against objectives and ensure achievements of quality improvements and quality outputs. Harman and Meek (2000), have further elaborated that with undertaking quality assurance in higher education, the stakeholders and other pressure groups become confident about the management of quality and the concomitant possible outcomes to be achieved.

Similarly, for Martin and Stella (2007), ¨quality assurance is an all-inclusive terminology referring to an ongoing, continuous process of evaluating (assessing, monitoring, maintaining, improving, and guaranteeing) the quality of a higher education system, institutions, or programs¨ (p. 34). Inside the scenes of higher education systems, quality assurance also refers to the relevant policies, attitudes, actions, and procedures that are necessary to make sure that quality is being maintained and enhanced (Schwarz & Westerheijden, 2004).

In conclusion, quality assurance can be broadly understood as a process in which the most decisive features and activities of the higher education system are measured and regulated. To this end, perhaps the quality assurance practice is tightly linked with critical concepts like performance, standards, norms, accreditation, outcomes, and accountability to serve as a bedrock foundation to safeguard quality in the ambiance of higher education (Altbach, Reisberg, & Rumbley, 2009). However, the mere existence of quality assurance systems and mechanisms do not automatically mean that the quality and the provision of quality education in HEIs is of good level or standard (Martin & Stella, 2007).

2.1.4 Quality Assessment

Assessment mostly concerns with the evaluation of quality and provision of quality education in HEIs (QAAD, 2013). According to Harvey and Newton (2004), assessment usually passes a judgment about the level of quality of teaching and learning processes or research activities that take place in educational institutions. In this light, an assessment process is meant to collect data, information, and shreds of evidence on the status of quality of HEIs –institution-wide assessment or their core activities, which include teaching-learning, research initiatives and

undertakings, and community engagements or services, and separately on specific academic programs that dwell in the institutions –program-based assessment (QAAD, 2013).

Smeenk and Teelxen (2003) as cited by (Atnafu and Shete, 2004) categorize quality assessment outlines into

1. Input – student intake, staff, information supply, capital buildings, facilities and other supplies, etc
2. Process – includes important organizational conditions, learning environment education methods, etc
3. Output – refers to study progress, average length of study, first year performance, etc.
4. Result – includes optional function in society, individual development, development of professional practices, etc.

2.1.5 Higher Education

Higher education importance is increasing as a source of scientific, technical and analytical skills. A well-trained and highly educated workforce supports growth and nation's competitiveness by achieving high level of productivity using existing technologies and engaging in innovation. Over the past 50 years the tertiary education become global industry enrolling millions of students. This growth especially in developing countries is very rapid. In the sub Saharan Africa only, gross enrollment ration increased 1.7% in 1980 to 5% 2004. This gross enrollment ration however is still lag behind the industrialized countries. But the most important difference is in the quality of higher education. (Kapur & Crowley, 2008)

Villar & Albertin (2010) summarize the work of many authors, when they suggest that the role of higher education institutions should be to encourage students to develop their proactive personality traits. Certainly, there is an expectation from government and employers that higher education institutions have a responsibility to prepare graduates for the world of work (De LaHarpe, Radloff, &Wyber 2000; Heaton, McCracken, & Harrison 2008).

2.1.6 Quality of Higher Education

Quality is one of the most important priority for the higher education. But there is wide variety on how to interpret meaning of quality of higher education. According to (Lalić, 2017) generally, there are three concepts for the quality of higher education. These are knowledge transfer, knowledge creation and service to the society.

Regarding the knowledge transfer higher education institutions should be able to prepare students to the labor market. And the institutions should develop new knowledge while they are engaged for the development of the society.

Stensaker (2004) remarked that although quality plays a crucial role in the realm of higher education, there is no universally valid and generally accepted meaning and explanation for it; but rather it is a matter of negotiation among multiple stakeholders and actors. Dare (2005) says quality in education is difficult to define and measure .In practice ,however, it is often described in terms of the educational experiences that help produce those outcome the learning environment or inputs into teaching process rather than in terms of students achievement basically because input are easier and less cost to measure.

As cited by Wariyo (2019), in Ethiopian context, quality is defined by (MoE/HERQA) as the totality of the University's effectiveness in its core processes and functions to satisfy stakeholder's needs, priorities, and requirements (fitness for purpose); to fulfill requirements of relevance in transforming learners, and to be responsive for accountability purposes.

One of the measurement for the quality of higher education is global innovation index produced by Cornell university, European institute of business administration, INSEAD, and world intellectual property organization (WIPO) which scales the innovation and higher education performance shows that Ethiopia rating is lagging behind its neighboring sub Saharan countries showing low progress in research and development in high education. (World Bank Group, 2017). Another is the higher education ranking which is composite indicator measuring enrollment rate, the proportion of graduates in science and engineering and inbound mobility of students. In this also, Ethiopia ranked low in research and development indicator based on number of research relative to total population and research expenditure calculates as proportion to GDP.

The performance of the countries higher education faces different challenges such as strong disparities in access and success, issues with quality and relevance and low research output. This shows that much work has to be done to improve the quality of education. The scientific output of research of Ethiopian universities is quite low. This is pronounced by the ranking of African universities as the ranking shows AAU at 39 places. But overall publication has doubled over the past 5 years. This contribution greatly by major universities between 2005 – 2009 like, AAU, Haramaya, Jimma and Mekelle universities (AU-NEPAD 2010). At the same

time, engineering research is at lowest state with only 2% research output. (World Bank Group, 2017).

2.1.7 Higher Education Quality Assessment Models

Earlier researchers studied higher education quality services emphasized academic issues more than managerial issues, concentrated on effective course delivery mechanisms and the quality of courses and teaching. Table 1 shows a brief of quality models that have been used to evaluate higher education in some well-known universities.

Table 1 Higher Education Service Quality Models

Authors	Year	University	Purpose of the used Model
M. S. Owlia & E. M. Aspinall	1996	Birmingham, UK	Presents a new framework for dimension of quality in higher education
R. F. Waugh	2001	Australia	Proposes a model for university administration quality
M. Lalovic	2002	Belgrade University	Presents an ABET assessment model using Six Sigma methodology for assessment in education
S. Lagrosen, R. S. Hashemi and M. Leitner	2004	Austria & Sweden	Examine the dimensions that constitute quality in higher education and to compare these with the dimensions of quality that have been developed in general service quality research
Z. Yang, L. Yan-ping and T. Jie	2006	China	To design a model that is suitable to evaluate service quality of Chinese higher education using Servqual
M. Tsinidou, V. Gerogiannis and P. Fitsilis	2010	Greece	The quality determinants are identified for education service provider by higher education institutions in Greece to measure their relative importance from the students' points of view
A. R. Arokiasamy	2012	Malaysia	Configure the importance of mainatning service quality in higher education industry
A. Y. Noaman, A. H. M. Ragab, A. G. Fayoumi, A. M. Khedra and A. I. Madbouly	2013	Saudi Arabia	Development of a model for assessment of higher education quality standards at King Abdulaziz University (KAU)

Source: A.Y. Noaman, et al. (2013)

2.1.8 HERQA Institutional Quality Audit

The Higher Education Relevance and Quality Agency (HERQA) is an autonomous agency established through the Higher Education Proclamation (351/2003) as one of the key agencies responsible for guiding and regulating the higher education sector in Ethiopia. The mission of HERQA is to help ensure a high quality and relevant higher education system in the country. The Agency is mandated to report on the relevance and quality of higher education offered by all higher education institutions (HEIs) in Ethiopia. One of the central roles of HERQA is to encourage and assist the growth of an organizational culture in Ethiopian higher education that values quality and is committed to continuous improvement. (HERQA, 2006).

As one of its key activities HERQA will carry out institutional quality audits of all HEIs. An institutional quality audit is an in-depth analysis and assessment of the quality and relevance of programs and of the teaching and learning environment. Equally importantly, an institutional quality audit will assess the appropriateness and effectiveness of a HEI's approach to quality care, its systems of accountability and its internal review mechanisms (HERQA, 2006). As cited by Abebaw Y. Adamu (2012), "institutional quality audit is "an in-depth analysis and assessment of the quality and relevance of the programs and of the teaching and learning environment. Equally importantly, an institutional quality audit will assesses the appropriateness and effectiveness of HEI's approach to quality care, its systems of accountability and its internal review mechanisms."

An essential contribution to a HERQA institutional quality audit is a Self Evaluation Document prepared by the HEI. An institutional quality audit will seek to verify claims of quality and relevance made in a Self Evaluation Document. An institutional quality audit report prepared by HERQA will provide a description and evaluation of the quality of a HEI's activities and of its mechanisms for assuring quality and relevance. This report will make clear HERQA's confidence in the ability of the HEI to provide appropriate education. A HERQA institutional quality audit report will highlight elements of good practice and make recommendations for improvements. In issuing institutional quality audit reports HERQA aims to support a HEI by recognizing its good practices and by indicating areas where changes in practice can enhance the quality and relevance of its activities. HERQA hopes that through its institutional quality audit reports and the dissemination of good practice that it will help to enhance the provision of higher education in Ethiopia and the confidence of all stakeholders in the quality of that provision. The quality model HERQA currently uses has three elements; *input, process and output* (HERQA, 2005). One of the inputs is the design of a curriculum, which eventually leads

to the development of an educational program in a given department. It should emanate from the needs of stakeholders namely the students, parents, employers, government and the society.

To this end, HERQA has determined ten major areas, which will form the focus points of its institutional quality audits. (HERQA, 2006)

1. Vision, Mission and Educational Goals
2. Governance and Management System
3. Infrastructure and Learning Resources
4. Academic and Support Staff
5. Student Admission and Support Services
6. Program Relevance and Curriculum
7. Teaching, Learning and Assessment
8. Student Progression and Graduate Outcomes
9. Research and Outreach Activities
10. Internal Quality Assurance

Figure 1 Stakeholders and Quality in HEIs

Source: HERQA, 2005

2.1.9 Higher Education Quality Assessment Model (HEQAM-KAU)

The HEQAM model developed by Noaman, A. Y., Ragab, A. H., Fayoumi, A. G., Khedra, A. M., & Madbouly, A. I. was introduced in 2013 at the King Abdulhaziz Universty, Saudi Arabia. This model consists of eight sub criteria and 53 alternatives. The main criterias include Curriculum, Staff, Career Prosepects, Infrastructure, E-Services, Administrative services, Library services and location. This model was primarliy used in KAU for the pupose of assessing educational quality in the kingdom of Saudi Arabia. The main advantage of this model is that it assigns a quality weight for all 8 sub criterias and 53 alternatives respectively. Figure 2 below ilustrates the HEQAM- KAU model.

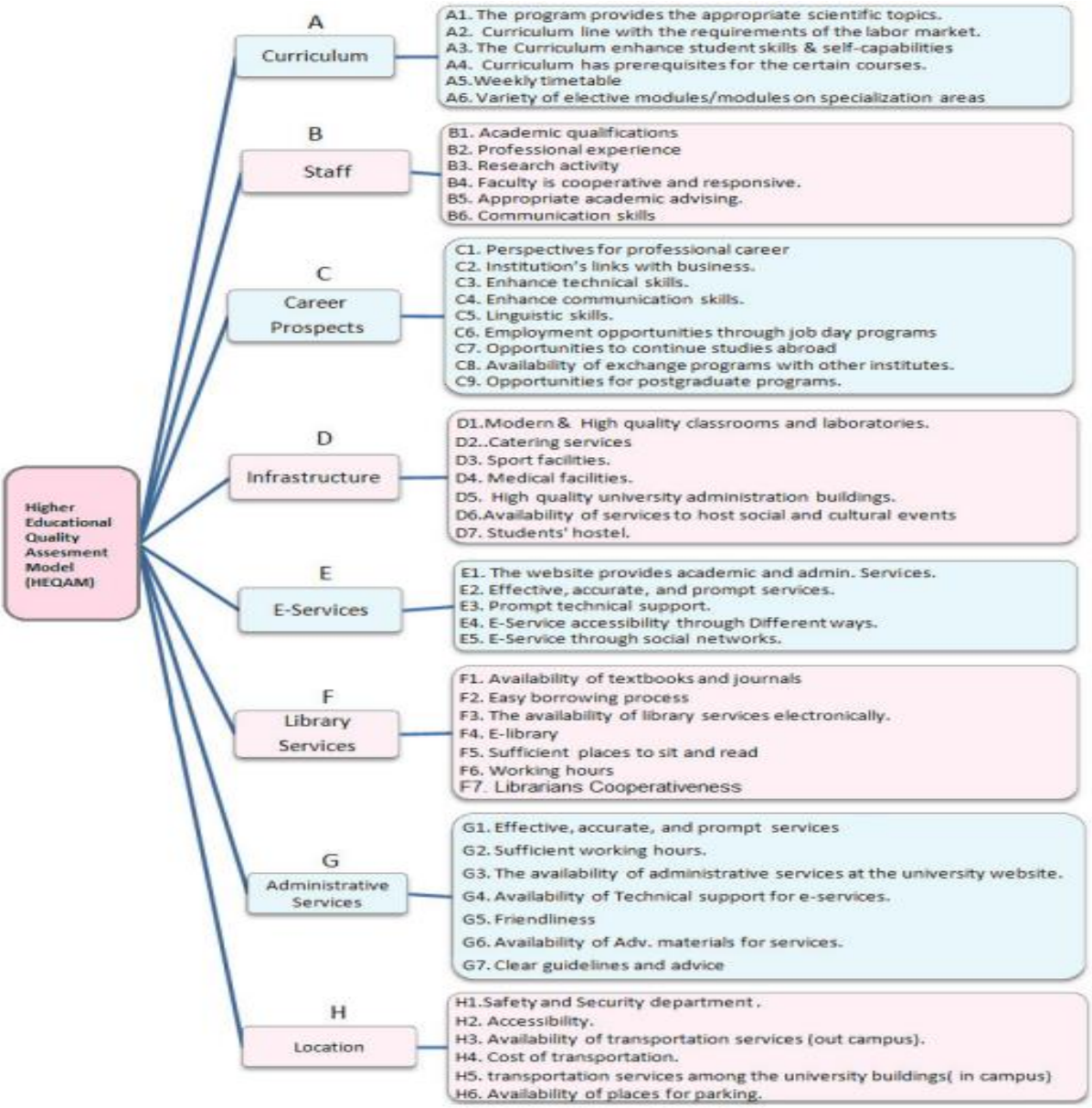

Figure 2 HEQAM Model

Source: A.Y Noaman et al. (2013)

2.2 Empirical Literature Review

2.2.1 Overview of Higher Education in Ethiopia

Ethiopia has been expanding its higher education sector aiming to develop highly qualified, motivated, and innovative human resource that can produce and transfer advanced and relevant knowledge for socioeconomic development and poverty reduction, with a vision to realize a middle income country by 2025 (Ministry of Education, 2010).

The crucial role of higher education institutions (HEIs) in solving developmental problems through the production of skilled labor has received serious consideration. HEIs are expected to become responsive to the demands of the labor market in the context of an increasingly competitive, complex, and globalized knowledge economy. Since 1994, a succession of new policies have been designed and implemented, leading to major quantitative and qualitative changes in Ethiopian higher education. The 1994 Education and Training Policy was the first framework for system reform and transformation. The document stressed the importance of higher education for the development of the country. The first Higher Education Proclamation was issued in 2003, followed by a new version in 2009. The 650/2009 Higher Education Proclamation (HEP) currently functions as the legislative framework for the transformation of higher education (MoE, 2010). According to the 650/2009 Proclamation, HEIs are expected to prepare knowledgeable, skilled, and attitudinally mature graduates in sufficient numbers and with the required quality within relevant fields and disciplines for the country to become internationally competitive. Moreover, HEIs are intended to promote and enhance research, with a focus on knowledge and technology transfer consistent with the country's priorities (MoE, 2010).

Two higher education councils (or organs) support the work of the Ministry of Education and higher education institutions: the Higher Education Relevance and Quality Agency (HERQA) and Education Strategic Centre (ESC). HERQA was established in 2003. It is an autonomous legal body with the task to evaluate the quality and relevance of all HEIs (MoE, 2010). The main role of ESC is to contribute to the development of higher education policy and institutions by developing national strategies and long-term plans, engaging in data collection and analysis, conducting research on policies, practices and results, acting as a resource center for reform, change, and development, and consulting on higher education development (MoE, 2010). In addition to the structural reforms, Ethiopia is currently engaged in expanding its higher

education system. MoE data from 2013 indicate that undergraduate enrolment numbers increased from 310,702 students in 2008/09 to 553,848 students in 2012/13.

The key outcomes of higher education are a balanced distribution of higher education opportunities throughout the country, through broad access, in particular in science and technology, and increased student learning, personal growth, and improved employability. In 2008, the Ministry of Education introduced a new intake policy at Ethiopian public HEIs, with emphasis on science and technology. The policy aims to increase the workforce in science and technology to facilitate the implementation of the country's agriculture-led industrialization policy. The policy document emphasizes the need to expand the annual intake considerably, and to achieve a new distribution between professional and general academic programs, with a 70 percent share to science and technology and a 30 percent share to humanities and social sciences for the five-year period from 2008/2009 to 2012/2013. The distribution among fields of study is as follows: engineering and technology, 40 percent; natural and computational sciences, 20 percent; medicine and health sciences, 5 percent; agricultural sciences, 5 percent; business and economics, 20 percent; and social sciences and humanities, 10 per cent (MoE, 2008). In the year 2012/2013, the ratio of the regular (official) undergraduate program in science and technology to all programs was 67:33 (MoE, 2013). This initiative clearly stipulates the weight given to science and technology in line with the development goal of the government.

Harmonized in 2013, civil engineering Curriculum of Ethiopia contains some 10 major sections and numerous subsections, namely background, rationale, and objectives of the program. It also identifies professional/graduate profiles, program requirements, teaching-learning methods, module selection, sequences, and quality assurance in that order. While the rationale for the program draws on its contributions to the country's development, there seems less distinction between program objectives, professional profiles, graduate profiles (competencies). Following these, a detailed narration of competencies in areas communication and social studies, and competencies in engineering areas such as general science and engineering; construction technology and management; surveying; structure design; geotechnical engineering; road and transport engineering; environmental and sanitary engineering; water resource engineering and design project and internship was made. It was through program that AAiT's curriculum was revised to meet international accreditation requirements, and was then used as critical input for the development of the harmonized Civil Engineering curriculums of other institutes or universities.

Concerning program requirements, it has been stated that, while admission into regular undergraduate program is processed through the Ministry of Education, admission into continuing education program is processed by the university registrar office. Similarly, the last section of the curriculum offers narrations on teaching methods and the assessment polices therewith. Hence it has been stated that different teaching methods would be in use- learner cantered teaching approach, as a defining feature of the curricula, has been mentioned clearly. Yet continuous assessment has been stated as the major learning assessment methods (MoE 2013).

2.2.2 Researches in Quality of Education

Several researches have been conducted in the area of quality assurance in Ethiopian higher education. Most studies paint a gloomy picture when it comes to implementation of QA systems. For instance, the study by Tadesse (2014), examines whether the process and contents of quality assurance constitute a substantial means by which Ethiopian higher learning institutions improve the quality of teaching and learning. It also outlines the consequences of quality assurance and its associated factors. The study has revealed the presence of some misalignment and inherent methodological flaws; and these have brought only partial benefits, and some unintended ill-effects.

Another study conducted by (Tamrat, 2020) examined the practices, challenges, and prospects of using accreditation, external quality audit, and internal quality assurance as major components of the quality assurance (QA) regime in the Ethiopian higher education sector. According to him, despite availing the tools and mechanisms for assuring quality both at national and institutional levels, the sectoral practice lags behind policy directions with little coordination among the discrete QA schemes deployed. This has resulted not only in undermining the possible gains from each component of the QA regime but also in achieving the greater purpose of promoting quality higher education at a national level. Most notable points from previous researches is that QA programs, accreditation endeavors are more nuanced in private institutions than that of public ones.

According to Addamu (2012), public higher education institutions opt to institutional audit rather than accreditation of program and institution. Furthermore most public higher education institutions end up shelving recommendations put forward in audit reports. As highlighted by several authors, including (Akalu, 2014), the urge for higher education expansion has placed undue pressures particularly on the state of quality enhancement and autonomy of universities.

2.2.3 Quality Assessment in Ethiopian Higher Education Institutions

Quite a number of researchers has taken it upon themselves to conduct studies on issues related to education quality in Ethiopian higher education institutions. A study conducted by Tadesse Regassa (2013), has indicated that Jimma University has made its level best to enhance the quality of education through the implementation of continuous assessment, active learning approach, e-learning, remedial and affirmative action and application of community-based training. The study highlights that there is a variation among colleges and Institutes in their performance. The researcher employed cross-sectional survey method with a target population that span from students to teachers, department heads, and units of student support services. Even though the study was conducted based on the HERQA audit model, which fundamentally constitute ten focus areas, the researchers opted to exclude two of them namely student progression and graduate outcomes as well as research and outreach activities with the argument that they can be implied by emphasizing on the inputs and processes. However, they fail to objectively illustrate this line of argument in their analysis and conclusion.

An institution-based cross-sectional study was employed in Arba Minch College of Health Sciences (AMCHS), students and staff from all departments to assess the quality of education and its associated factors for the future improvement in the study site. This research used eight criteria's to measure the educational quality. They were curriculum, workers (staffs), e-services, library, administrative services, location, career and resources adapted from different higher education assessment models. They calculated the mean and standard deviation to assess the quality of Education and weight score was ranked from eight (best quality), the score greater than or equal to 3.5 to be good, and the remaining range less than 3.5 to be poor quality. Table 2 shows the result of the research findings.

Table 2 The descriptive statistics of quality of education of AMCHS in 2017

No.	Variables	Mean	Standard Deviation	Educational quality
1	Curriculum	3.18	1.17	Poor Quality
2	Staff equipping students sufficiently	3.00	1.13	Poor Quality
3	Administration	2.59	1.22	Poor Quality
4	Reading Places	2.31	1.11	Poor Quality
5	E-Services	2.56	1.06	Poor Quality
6	Resource	2.98	1.04	Poor Quality
7	Location	3.14	1.07	Poor Quality
8	Career	3.24	1.15	Poor Quality
	Average	2.87	1.12	Poor Quality

Source: - Gilano and Hailegebreal (2021)

Based on the research findings, the items with the biggest level of quality were those with the largest mean scores which are career oportunitites, curriculum, location and staff equipping students sufficiently whereas, administration services, library, e services and resource were described as low quality. The overall quality of education as rated by the respondents was found to be 2.87, which indicates low quality of education.

According to Gilano and Hailegebreal (2021), factors that were associated with poor quality of education were

1. Accessibility
2. Friendliness of staffs to each other and students
3. Availability of clear guideline of conduct
4. Presence of effective, accurate, and promotive services
5. High standard administrative buildings
6. Availability of standard catering services
7. Availability of standard laboratories
8. Communication and exchanges with similar level colleges in the region
9. Weekly time table
10. Weekly load
11. Distance and some sociodemographic.

2.2.4 Studies on Civil Engineering Education Quality

A study has been conducted by (Ethiopian Association of Civil Engineers (EACE), 2018) on Civil Engineering Education Quality and Employment Opportunities in Ethiopia. It was designed to examine the linkages between civil engineering education and labour market in Ethiopia. A mixed method incorporating qualitative and quantitative research methods were used for assessing quality of education. A sample of 100 academic staff, 15 Academic leaders and 365 final year civil engineering students were taken from the 16 sampled universities. The researchers applied a tracer study, with its own sampled size, as a research design for assessing the employability of graduates of civil engineering education, with a sample size of 400 students of engineering graduates of 2014/15 cohorts using Tarot formula. Four employers – one public and three private –and 11 scholars in the field of civil engineering and 5 senior level professionals working in the industry were targeted for the study. Data and information was gathered through pilot tested questionnaires, semi-structured interviews and document analysis, respectively.

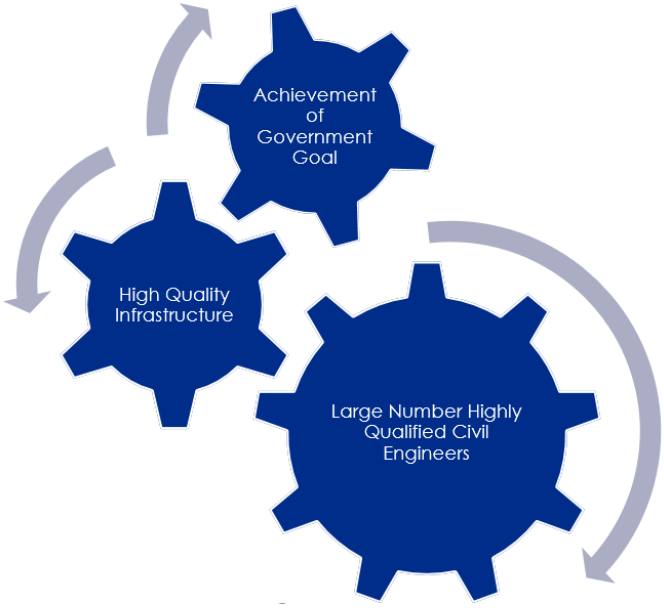

Figure 3 Dramatic increase in intake due to Government policy

Source: Ethiopian Association of Civil Engineers (EACE), 2018

The findings of the study showed that the quality of civil engineering education is low when compared to international standard with the outcome of low competent graduates of civil engineers that leads to high unemployment. (Ethiopian Association of Civil Engineers (EACE), 2018)

2.2.5 Modified HEQAM-KAU Model

The HERQA quality audit manual primarily focuses on highlighting strength and shortcomings of the institution in question with regard to the ten focus areas and does not have a specific model to measure the quality level quantitatively. This is where the HEQAM- KAU model comes in handy. As depicted in the figure below, it assigns specific values to core elements of the assessment and results in a final quantitative assessment output. However, it falls short of specifying whether the final assessment falls in range of high medium and low quality levels. That is why the researcher has attempted to couple the HEQAM-KAU model with that of mean score interpretation range set by Educational planning and research division (EPRD) of MoE shown in Table 3.This range was used as a reference to grade the quality level of the 7 variables used in the modified HEQAM-KAU model based on their mean scores.

Table 3 Interpretation of Mean Score

Mean Score	Interpretation of Mean Score
1.00 - 1.79	Very Low
1.80 - 2.59	Low
2.60 - 3.39	Medium
3.40 - 4.19	High
4.20 - 5.00	Very High

Source: Educational Planning and Research Division (EPRD), MoE, 2006

Several of the sub components require a wider research, which in practice demands the expertise of transportation engineer's and transport economists for example availability of transportation services out of campus, cost of transportation, availability of places for parking. Therefore, the researcher opted to exclude location as an assessment variable and adjusted the weights of the other inputs accordingly. Table 4 indicates the original and adjusted weight score for the HEQAM-KAU Model.

Table 4 Modified Version of the HEQAM-KAU Weight Score

Criteria	Weight in % (Original)	Weight in % (Modified)
Curriculum	19.7	20.9
Staff	17.3	18.4
Career Prospects	15.9	16.9
Infrastructure	12.7	13.5
E Services	11.7	12.4
Library Services	9.8	10.4
Administrative Services	7.3	7.8
Location	5.9	-
Total weight %	**100**	**100**

Source – HEQAM-KAU model (modified by the researcher)

CHAPTER THREE
RESEARCH METHDOLOGY

3.1 Introduction

The primary purpose of this descriptive study is to assess the challenges of education in undergraduate civil engineering program at Addis Ababa Institute of Technology. A variety of data has been collected to gain comprehensive picture of the challenge from multiple perspectives. This chapter describes the methodology and research design for this study. First, the chapter provides an overview of research design and explains the selected methodology for the study. Then, the chapter focuses the methods of data collection print administered questionnaire and semi-structured interview. Finally, it deals with the data analysis and discussion of raw data collected from the study group.

3.2 Research Approach and Design

The major purpose of descriptive research is description of the state of affairs as it exists at present and it reports what has happened or what is happening. (Kotahari, 2004) Therefore, in order to assess the quality of education at the school of civil and environmental engineering by using a modified HEQAM-KAU model, the study used the descriptive type of research design. The study uses this research design method due to the reason that the method describes the characteristic of the population or phenomenon studied.

The research has drawn on a mixed methods approach because according to Johnson, Onwuegbuzie, & Turner (2007), it will incorporate the diverse perspectives, qualitative and quantitative viewpoints, data collection, analysis and reference techniques. A carefully crafted qualitative research method: Participant's interviews, and quantitative research methods and survey questionnaires have allowed the researcher to build on the strength of each type of data collection. This minimizes the weaknesses of the individual approaches and it increases both the validity and reliability of the study.

3.3 Variables

This study used independent and dependent variables. The Independent variables were Curriculum, Staff, Career Prospects, Infrastructure, E- Services, Library Services, and Administration Services. The dependent variable was the quality of education.

3.4 Data collection Instruments

The data for the study was obtained from both primary and secondary sources. The primary data sources were gathered through Questionnaires and interviews. Literature review of related works were also used to collect secondary data for the study.

3.4.1 Questionnaires

It is a method of data collection to gather information from the respondents consisting series of Predefined questions in a pre-determined order. Quantitative data was collected using two questionnaires from current students and alumni of the school. The questionnaires were adapted from the HEQAM KAU Model, in a systematic way to address issues the researchers believed contributed to the quality of undergraduate education in civil engineering. They were designed to address issues regarding curriculum, staff, Career Prospects, Infrastructure, E-Services, Library services and administrative services. The researcher has used a dichotomous question, a 5-Point Likert scale questions which enables to understand respondents' degree of agreement with each statement.

3.4.2 Interview

Kothari (2004**)** stated that, in an interview the interviewer on the spot has to meet people from whom data have to be collected. Interview helps generate in depth information and gives greater flexibility for questions, and is suitable for intensive investigations. In this study, Interviews were used to collect basic and fundamental issues regarding the quality of education in civil engineering because interviews can help understand basic research issues/can help to get clear answers and gives a chance for a follow-up question.. Further, the interview approach allows for follow up question to be put based on answers. Semi-structured interviews were used for the study. As the instructors may point to areas of concern not included in the interview questions.

3.5 Population and Sampling

According to Hair et al. (2007), population of the study is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information The target population for the study will be students and instructors of the institute in the undergraduate program of Civil and Environmental engineering.

Due to convenience for the researcher the study area is institute in the undergraduate program of Civil and Environmental engineering. Prior to distributing the survey questionnaire to

current students and instructors of the institute, the researcher has tried to check the availability of students and instructors in the institute.

3.6 Sampling Method and Sample Sizes

To determine the number of sample respondents for this study, a formula developed by Kothari (2004:179) was used as a sample size determination tool. Since, this formula has been practically tested and used by scholars for more than four decade, the researcher considered the formula to correctly determine appropriate sample size for this study.

$$n = \frac{Z^2 * p * q}{(e^2(N-1)) + (Z^2 * p * q)}$$

Where:

n= the required sample size

Z^2 = is the abscissa of the normal curve that cuts off an area α at the tails (1- α equals the desired confidence level. The value for Z is found in statistical tables, which contain the area under the normal curve. e.g., Z=1.96 at 95%confidence level; and Z^2 =3.841).

N= the population size (180)

P= the population proportion (assumed to be 0.5 since this would provide the maximum sample size)

q= 1-p

e = is the desired level of precision or margin of error (5% error or 0.05)

Thus;

$$\frac{3.841 * 0.5 * (1 - 0.5) * 180}{(0.05^2 (180 - 1)) + (3.841 * 0.5 * (1 - 0.5)} = 123$$

Therefore, the required sample size for the study were found to be 123

3.7 Method of Data Analysis

In this study, the data analysis has followed two different paths depending on the data collected. The first is transcribing the data collected from interview and questionnaires then identification of key concepts, and finally similar concepts have been aggregated to into key challenges. Another approach focuses on the severity of the challenges identified by the first analysis. Here, scaled data from questionnaires and interviews have been analyzed. In order to analyze the data, first, a data entry template was designed in Statistical Package for the social Sciences (SPSS) V 23 to enter the data. Then, the collected data has been encoded in the template providing a complete computer assisted database of the study. Following data entry, data has been cleaned for accuracy. Next, the data was analyzed using descriptive statistical methods. Frequency distribution tables including percentages, mean and standard deviation were used to describe the findings of the analysis.

Using the combination of qualitative and quantitative design can improve the assessment study by ensuring the limitations of one type of data are balanced through the strength of another. Qualitative data was analyzed as narration, whereby important points have been highlighted for in-depth interview understanding of phenomena and for making recommendations. Both qualitative and quantitative data analysis has been integrated and supplemented.

3.8 Validity and Reliability

3.7.1 Validity

According to Standards for Educational and Psychological Testing (1985), validity "refers to the appropriateness, meaningfulness, and usefulness of the specific inferences made from test scores. In this research the validity was insured by collecting data from different sources, like civil engineering students ranging year 2 up to year 5, Alumni's and Instructors. In order to minimize bias variables have been given equal opportunity to score from the list.

3.7.2 Reliability

The reliability of the data collection instrument were tested by using Cronbach Alpha. It was computed by using SPSS version 23. According to George and Malery (2003) alpha value greater than 0.7 is acceptable. Hence, the result obtained from the pre-test revealed that Alpha

value of 0.956, which indicates measuring instrument used in the study is internally consistent and reliable. Table 5 below shows the result for reliability.

Table 5 Reliability Statistics

	Reliability Statistics	
Variables	Cronbach's Alpha	N of Items
Curriculum	0.730	6
Academic Staff	0.814	6
Career Prospect	0.917	9
Infrastructure	0.893	7
E- Services	0.895	5
Library Services	0.809	7
Administrative Services	0.908	7
Total	**0.956**	**47**

3.9 Ethical Consideration

The researcher followed ethically and morally acceptable processes throughout the research process. The data were collected with the full permission of the participants and confidentially without disclosing the respondents‟ identities.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter presents the result of the data collection. As mentioned on the previous chapter the study has a descriptive research approach, which includes both quantitative and qualitative methods. The objective of the study was to assess the quality of education at the school of civil and environmental engineering AAiT. Accordingly, quantitative and qualitative data have been collected from Addis Ababa Institute of Technology, School of civil and environmental engineering. In order to meet the intended target stated in the objective of the study, the research questions focuses on assessment of quality of education.

The first section presents the qualitative data of student's perspective by highlighting on respondent's profile, then passes on to enrollment and presents students' perspective in curriculum, staff, career prospects, infrastructure, E- Services, Library services, administrative services. For ease of analysis and interpretation the five scale of measurement were reduced to two; strongly agree and agree were condensed to agree; strongly disagree and disagree were condensed to disagree. The second section brings the qualitative data of Instructors perspective gathered from the interview. At the end of this chapter, findings from the quantitative data are triangulated and briefly discussed with that of the qualitative section of the study.

4.2 The Student Perspective

4.2.1 Response Rate

In order to collect the primary data, 150 questionnaires were distributed to students and Alumni. Among them, 125 (83%) of them were properly filled and returned.

4.2.2 Respondent Profiles

Table 6 indicates the current year of education for the respondents. From the table, majority of the respondents (113), were found to be from year 3, 4, and 5. This implies the study included more students that are senior.

Table 6 Current year of education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Alumini	7	5.6	5.6	5.6
	Year 2	5	4.0	4.0	9.6
	Year 3	31	24.8	24.8	34.4
	Year 4	31	24.8	24.8	59.2
	Year 5	51	40.8	40.8	100.0
	Total	125	100.0	100.0	

As shown in table 7, 75.2% of respondents were male and the 24.8% were found to be female. This indicates that the number of male respondents are higher than the number of female respondents on the sampled school.

Table 7 Sex of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	31	24.8	24.8	24.8
	Male	94	75.2	75.2	100.0
	Total	125	100.0	100.0	

Source: Own Survey, 2021

According to the data presented on Table 8, 114 respondents were at the age between 18-25 years, which implies respondents are thought to be mature enough to make personal judgements and respond to questioners without bias.

Table 8 Age of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	> 25	11	8.8	8.8	8.8
	18 - 21	39	31.2	31.2	40.0
	22 - 25	75	60.0	60.0	100.0
	Total	125	100.0	100.0	

Source: Own Survey, 2021

4.2.3 Regarding Enrollment

As indicated in Table 9, 121 respondents answered natural science stream was their first choice in secondary school. This shows most respondents are inclined to science and engineering fields, which can be used as an evidence that the study addressed the right demography.

Was natural science stream your first choice in secondary school?
Table 9 Enrollment 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	4	3.2	3.2	3.2
	Yes	121	96.8	96.8	100.0
	Total	125	100.0	100.0	

Source: Own Survey, 2021

Based on the data presented in Table 10, 79.2% (99) respondents replied that Engineering profession was their first choice while applying for higher education. This implies that one in five student initially considered other natural science streams than engineering. This number is a significant increase from those 3% students who joined natural science stream against their will. The effect of forceful allocation by the government trickles down to program levels and have its own effect on the motivation of students.

Was engineering profession your first choice when applying to higher education?
Table 10 Enrollment 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	26	20.8	20.8	20.8
	Yes	99	79.2	79.2	100.0
	Total	125	100.0	100.0	

Source: Own Survey, 2021

According to the findings on Table11, 74.4 % (93) respondents stated that Addis Ababa Institute of Education was their first choice for higher education. It implies that AAiT is among the top priority for students joining higher education.

Was Addis Ababa Institute of Technology your first choice for higher education?
Table 11 Enrollment 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	25.6	25.6	25.6
	Yes	93	74.4	74.4	100.0
	Total	125	100.0	100.0	

Source: Own Survey, 2021

Based on the data presented on Table 12, majority of the respondent's 84% (105) replied that Civil engineering was their first choice after pre engineering semester. This indicates that they have an interest on the field. This data actually lessens the extreme tacit consensus that stipulates majority of the students join civil engineering against their will. An unofficial statistics by AAiT shows that in 2019 only 6% of pre-engineering students put civil engineering as their first choice. After given a second round chance, this number rose up to a staggering 33%.

Was civil engineering your first choice after pre-engineering semester?
Table 12 Enrollment 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	20	16.0	16.0	16.0
	Yes	105	84.0	84.0	100.0
	Total	125	100.0	100.0	

Source: Own Survey, 2021

4.2.4 Students' Perspective on Curriculum

In this section, six sub variables related to curriculum were presented to the respondents. 65.6% (82) respondents agreed that program provides appropriate scientific topics. The result from the second variable reveals that only 41.6% (52) respondents agreed that the curriculum is in line with the requirement of labor market. Less than half 42.4 % (53) respondents agreed that the curriculum enhance students' skills and self-capabilities, which also contributes to the concern for unemployment. On the next sub variable significant amount of respondents, 77.6% (97) agreed that the curriculum has prerequisite courses. Next, there is a positive sign that, 76% (95) respondents agreed on the existence of weekly timetable. The data output from last sub variable revealed that, variety of elective modules are available on specialization areas, which was supported by the 63.2% (79) respondents.

The general positive attitude towards the curriculum implies that the program provides appropriate scientific topics and that it enhances student's skills and self-capabilities. Students feel that the availability of variety of elective modules in different specialization areas gives them the chance to explore diversified career paths. The fact that only 41.6% students feel the curriculum is line with the requirements of the labor market is a precursor to their perception towards job availability. This implies that civil engineering curriculum remains inadequate to address the need and requirements of the labor market in the industry. According to the average

mean score of 3.619, we conclude that the quality of curriculum in the school is high. Table 13 shows the quality assessment on curriculum.

Table 13 Quality Assessment on Curriculum

	SD		D		N		A		SA			
	F	%	F	%	F	%	F	%	F	%	Mean	SD
The program provides appropriate scientific topics	3	2.4	7	5.6	33	26.4	52	41.6	30	24	3.792	0.9529
Curriculum is line with the requirements of the labor market	8	6.4	24	19.2	41	32.8	46	36.8	6	4.8	3.144	0.9976
The curriculum enhances students skills and self-capabilities	14	11.2	16	12.8	42	33.6	40	32	13	10.4	3.176	1.1364
The curriculum has prerequisites for the certain courses	1	0.8	5	4	22	17.6	64	51.2	33	26.4	3.984	0.8229
Weekly timetable is available	1	0.8	9	7.2	20	16	54	43.2	41	32.8	4.000	0.9246
Variety of elective modules are available on specialization areas	4	3.2	8	6.4	34	27.2	49	39.2	30	24	3.744	0.9992
										Average Mean	3.619	

Source: Own survey, 2021

4.2.5 Students' perspective on Academic Staffs

This section covers six key Sub Variables, which are used to assess the quality of academic staffs, Around 75.2 % (94) of the respondents has agreed that lectures have appropriate academic qualification and 65.6 % (82) respondents has agreed that lecturers have appropriate professional experience. This implies that the education is delivered by staffs who are qualified and with good professional experience. Whereas, from the result of the third sub variable, 43.2% of the respondents indicates that lecturers are not appropriately engaged in research activity, which can highly contribute to poor quality of education. The next variable shows that 48.8% of the respondents agreed that the facility is cooperative and responsive. The data also reveals that 50.4% of the respondents agree on the existence of academic advising at the school. The last Sub Variable checks whether lecturers have appropriate communication skills, 64% (80) respondents agreed. This shows that the communication skills needs to be improved. This indicates that majority of the students have confidence in the capacity/qualification of their instructors. However, behavioral aspects need more scrutiny since cooperativeness and responsiveness of staffs have rated low. The implication of this can cascade down to students' interest and negatively affect motivation for specific courses. Based on the average mean score of 3.522 for all sub variables, we can conclude that the quality of academic staffs is high. Table 14 indicates the assessment of academic staffs.

Table 14 Quality Assessment on Academic Staffs

	SD		D		N		A		SA			
	F	%	F	%	F	%	F	%	F	%	Mean	SD
Lecturers have appropriate academic qualification	1	0.8	4	3.2	26	20.8	56	44.8	38	30.4	4.008	0.8472
Lecturers have appropriate professional experience	1	0.8	12	9.6	30	24	59	47.2	23	18.4	3.728	0.9014
Lecturers are appropriately engaged in research activities	6	4.8	19	15.2	46	36.8	37	29.6	17	13.6	3.320	1.0442
Faculty is cooperative and responsive	22	17.6	11	8.8	31	24.8	42	33.6	19	15.2	3.200	1.3075
Appropriate academic advising is available	13	10.4	14	11.2	35	28	45	36	18	14.4	3.328	1.1693
Lecturers have appropriate communication skills	6	4.8	15	12	24	19.2	64	51.2	16	12.8	3.552	1.0196
										Average Mean	**3.522**	

Source: Own survey, 2021

4.2.6 Students' perspective on Career Prospect

In this section, nine sub variables were used to assess the quality of career prospect of the program. Less than 50 percent of respondents agreed that perspective for professional career is promising and 43.2% of the respondents were neutral about whether the school has adequate link with businesses. The second Sub Variable investigates whether AAiT's link with business is adequate, 5.6% (7) respondents strongly agreed, 24.8% (31) respondents agreed, 43.2 %(54) respondents were neutral, 20.8%(26) respondents disagreed and 5.6%(7) respondents strongly disagreed. The third Sub Variable focus on whether the program enhances technical skills for the job market, 10.4% (13) respondents strongly agreed,30.4%(38) respondents agreed, 31.2%(39) respondents were neutral,17.6%(22) respondents disagreed and 10.4%(13) respondents strongly disagreed. The fourth Sub Variable raises whether the program enhances communication skills for the job market, 8% (10) respondents strongly agreed,29.6% (37) respondents agreed, 36.8%(46) respondents were neutral, 20% (25) respondents disagreed and 5.6% (7) respondents strongly disagreed. The fifth Sub Variable checks whether the program enhances linguistic skills for the job market, 5.6 % (7) respondents strongly agreed, 26.4 %(33) respondents agreed, 40.8% (51) were neutral, 20.8% (26) respondents disagreed and the remaining 6.4 %(8) respondents strongly disagreed. The sixth sub variable assesses whether employment opportunities are available through Internship programs, 4.8 %(6) respondents strongly agreed, 21.6% (27) respondents agreed 40 % (50) respondents were neutral, 20.8 %(26) respondents disagreed and 12.8 %(16) respondents strongly disagreed. The seventh sub variable checks whether opportunities to continue studies abroad are available, 9.6 % (12)

respondents strongly agreed, 30.4% (38) respondents agreed, 31.2% (39) respondents were neutral, 16 %(20) respondents disagreed and 12.8 %(16) respondents strongly disagreed. The next sub variable is about the availability of exchange programs with other institutes, 9.6% (12) respondents strongly agreed, 28% (35) respondents agreed, 33.6% (42) respondents were neutral, 12% (15) respondents disagreed and the remaining 16.8%(21) respondents strongly disagreed. The last sub variable assesses the opportunity for graduate program, 17.6% (22) respondents strongly agreed, 30.4% (38) respondents agreed, 34.4 (43) respondents were neutral, 15.2% (19) respondents disagreed and 2.4%(3) respondents strongly disagreed. These imply that there is somehow gloomy expectation regarding future perspective for professional career. The fact that students believe AAiT's link with businesses is not adequate implies that the much needed support of the institution is minimal or outright non existent in securing job after graduation or maximizing employability. Based on the average mean score of 3.117, we can conclude that the quality assessment on career prospect is medium. Table 15 shows the Quality assessment on career prospect.

Table 15 Quality Assessment on Career prospect

	SD		D		N		A		SA			
	F	%	F	%	F	%	F	%	F	%	Mean	SD
Perspective for professional career is promising	8	6.4	16	12.8	45	36	42	33.6	14	11.2	3.304	1.0413
AAiT's link with businesses is adequate	7	5.6	26	20.8	54	43.2	31	24.8	7	5.6	3.040	0.9538
The program enhances technical skills for the job market	13	10.4	22	17.6	39	31.2	38	30.4	13	10.4	3.128	1.1428
The program enhances communication skills for the job market	7	5.6	25	20	46	36.8	37	29.6	10	8	3.144	1.0136
The program enhances linguistic skills for the job market	8	6.4	26	20.8	51	40.8	33	26.4	7	5.6	3.040	0.9788
Employment opportunities are available through Internship programs	16	12.8	26	20.8	50	40	27	21.6	6	4.8	2.848	1.0554
Opportunities to continue studies abroad are available	16	12.8	20	16	39	31.2	38	30.4	12	9.6	3.080	1.1681
Availability of exchange programs with other institutes	21	16.8	15	12	42	33.6	35	28	12	9.6	3.016	1.2114
Opportunities for graduate program	3	2.4	19	15.2	43	34.4	38	30.4	22	17.6	3.456	1.0279
										Average Mean	**3.117**	

Source: Own survey, 2021

4.2.7 Students' perspective on Infrastructure

According to the data gathered by the questioners, this section presents seven sub variables, the first variable assess whether the class rooms and laboratories are modern and high quality,

based on the data, 4.8%(6) respondents strongly agreed, 25.6%(32) respondents agreed, 46.4%(58) respondents were neutral 19.2 %(24) respondents disagreed and 4%(5) respondents strongly disagreed. The next sub variable is about quality of catering service, 6.4 % (8) respondents strongly agreed, 42.4% (53) respondents agreed, 27.2%(34) respondents were neutral, 14.4%(18) respondents disagreed and 9.6%(12) respondents strongly disagreed. The third sub variable is about quality of sport facilities, 8% (10) respondents strongly agreed, 32% (40) respondents agreed, 26.4%(33) were neutral, 13.6%(17) respondents disagreed and 20%(25) respondents strongly disagreed. The fourth sub variable is about the quality of medical facilities within the school, 8.8 %(11) respondents strongly agreed, 37.6% (47) respondents agreed, 18.4 %(23) respondents were neutral, 21.6% (27) respondents disagreed, and the remaining 13.6% (17) respondents strongly disagreed. The fifth sub variable checks the quality of university administration buildings, 9.6% (12) respondents strongly agreed, 23.2% (29) respondents agreed, 42.4% (53) respondents were neutral, 18.4% (23) respondents disagreed and 6.4% (8) respondents strongly disagreed. The sixth sub variable assesses the availability of services to host social and cultural events, 5.6% (7) respondents strongly agreed, 24% (30) respondents agreed, 34.4% (43) respondents were neutral, 18.4 %(23) respondents disagreed and 17.6%(22) respondents strongly disagreed. The last sub variable is the availability of student hostel, 8.8% (11) respondents strongly agreed, 34.4% (43) respondents agreed, 28.8% (36) respondents were neutral, 12% (15) respondents disagreed and 16%(20) respondents strongly disagreed. Based on the average mean score of 3.004, the quality of infrastructure is medium. The average rating implies students have higher expectation of the university regarding infrastructure since, AAU is regarded as one of the most well-structured HEI in the country. Table 16 shows Quality assessment on Infrastructure

Table 16 Quality Assessment on Infrastructure

	SD		D		N		A		SA			
	F	%	F	%	F	%	F	%	F	%	Mean	SD
Modern and High Quality classrooms and laboratories	5	4	24	19.2	58	46.4	32	25.6	6	4.8	3.080	0.8944
Catering Services	12	9.6	18	14.4	34	27.2	53	42.4	8	6.4	3.216	1.0820
Sport facilities	25	20	17	13.6	33	26.4	40	32	10	8	2.944	1.2592
Medical Facilities	17	13.6	27	21.6	23	18.4	47	37.6	11	8.8	3.064	1.2231
High quality university admin buildings	8	6.4	23	18.4	53	42.4	29	23.2	12	9.6	3.112	1.0256
Availability of services to host social and cultural events	22	17.6	23	18.4	43	34.4	30	24	7	5.6	2.816	1.1527
Students hostel	20	16	15	12	36	28.8	43	34.4	11	8.8	3.080	1.2088
										Average Mean	**3.044**	

Source: Own survey, 2021

4.2.8 Students' perspective on E-Services

This section presents the quality assessment on E-Services, the first sub variable checks whether the web site provides academic and admin services, 14.4%(18) respondents strongly agreed 24.8% (31) respondents agreed,41.6%(52) respondents were neutral,16.8%(21) respondents disagreed and 2.4%(3) respondents strongly disagreed. The second sub variable assesses whether the E service delivers effective accurate and prompt services, 6.4% (8) respondents strongly agreed, 23.2% (29) respondents agreed,41.6%(52) respondents were neutral,24.8%(31) respondents disagreed and 4%(5) respondents strongly disagreed. The third sub variable is whether there is prompt technical support for the E-Service, 6.4% (8) respondents strongly agreed, 15.2% (19) respondents agreed,37.6 %(47) respondents were neutral,32.8%(41) respondents disagreed and 8% (10) respondents strongly disagreed. Fourth sub variable is used to assess whether E- service is accessible through different ways, 6.4% (8) respondents strongly agreed, 18.4% (23) respondents agreed,46.4 %(58) respondents were neutral,20.8%(26) respondents disagreed and 8% (10) respondents strongly disagreed. The last sub variable in this category checks whether E-Services are available through social networks,9.6% (12) respondents strongly agreed, 20.8% (26) respondents agreed,42.4 %(53) respondents were neutral,18.4%(23) respondents disagreed and 8.8% (11) respondents strongly disagreed. Based on the average mean score of 3.025, we can conclude that quality of E-Services at the school is medium. This implies that e-services require a major makeover, which include diversifying accessibility of e-services through different ways including social networks, provision of effective accurate and prompt services including technical support.
Table 17 shows quality assessment on E- Services.

Table 17 Quality Assessment on E- Services

	SD		D		N		A		SA			
	F	%	F	%	F	%	F	%	F	%	Mean	SD
The website provides academic and admin services	3	2.4	21	16.8	52	41.6	31	24.8	18	14.4	3.320	0.9968
Effective accurate and prompt services	5	4	31	24.8	52	41.6	29	23.2	8	6.4	3.032	0.9498
Prompt technical support	10	8	41	32.8	47	37.6	19	15.2	8	6.4	2.792	1.0104
E- Service accessibility through different ways	10	8	26	20.8	58	46.4	23	18.4	8	6.4	2.944	0.9862
E- services through social networks	11	8.8	23	18.4	53	42.4	26	20.8	12	9.6	3.040	1.0656
										Average Mean	**3.025**	

Source: Own survey, 2021

4.2.9 Students perspective on the quality of Library Services

The next main variable assesses quality of library services by using eight sub variables, the first sub variable checks the availability of textbooks and journals, 33.6% (42) respondents strongly agreed, 43.2%(54) respondents agreed, 18.4%(23) respondents were neutral, 3.2%(4) respondents disagreed and 1.6%(2) respondents strongly disagreed. The second sub variable checks whether borrowing process is easy or not, 20%(25) respondents strongly agreed, 45.6%(57) respondents agreed, 24.8%(31) respondents were neutral, 5.6%(7) respondents disagreed and 4%(5) respondents strongly disagreed. The third sub variable assesses the availability of library services electronically, 21.6%(27) respondents strongly agreed, 39.2%(49) respondents agreed, 22.4%(28) respondents were neutral, 11.2%(14) respondents disagreed and 5.6%(7) respondents strongly disagreed.

The fourth sub variable checks the availability of E- Library, 16.8%(21) respondents strongly agreed, 36.8%(46) respondents agreed, 25.6%(32) respondents were neutral, 16%(20) respondents disagreed and 4.8%(6) respondents strongly disagreed. The fifth sub variable assesses whether there is sufficient place to sit and read, 29.6% (37) respondents strongly agreed,40%(50) respondents agreed, 16.8%(21) were neutral, 8.8%(11) respondents disagreed and 4.8%(6) respondents strongly disagreed. The next variable checks whether adequate/suitable working hours are in place, 38.4%(48) respondents strongly agreed, 40.8%(51) respondents agreed, 15.2%(19) respondents were neutral, 3.2%(4) respondents disagreed and 2.4%(3) respondents strongly disagreed. The last sub variable talks about librarian cooperativeness, 32%(40) respondents strongly agreed, 48.8%(61) respondents agreed, 13.6%(17) respondents were neutral, 2.4%(3) respondents disagreed and 3.2%(4) respondents strongly disagreed. Predominantly large number of students have indicated that the library service is of excellent quality especially in the context of undergraduate education. This is manifested through abundant availability of textbooks and journals, easy borrowing process, availability of services electronically, electronic repository and e-library, sufficient space and ergonomics to sit and read, ample working hours, cooperativeness of librarians, etc. This implies that students are more or less satisfied with library, which has its own contribution towards quality of education. Finally, from the average mean score of 3.821 we can conclude that quality of library services is high. Table 18 shows the quality assessment on library services.

Table 18 Quality Assessment on library Services

	SD		D		N		A		SA		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Availability of textbooks and journals	2	1.6	4	3.2	23	18.4	54	43.2	42	33.6	4.040	0.8926
Easy borrowing process	5	4	7	5.6	31	24.8	57	45.6	25	20	3.720	0.9805
The availability of library services electronically	7	5.6	14	11.2	28	22.4	49	39.2	27	21.6	3.600	1.1144
E-library	6	4.8	20	16	32	25.6	46	36.8	21	16.8	3.448	1.0959
Sufficient place to sit and read	6	4.8	11	8.8	21	16.8	50	40	37	29.6	3.808	1.1049
Adequate/suitable working hours	3	2.4	4	3.2	19	15.2	51	40.8	48	38.4	4.096	0.9369
Librarian cooperativeness	4	3.2	3	2.4	17	13.6	61	48.8	40	32	4.040	0.9193
										Average mean	**3.821**	

Source: Own survey, 2021

4.2.10 Students' Perspective on the Quality of Administrative Services

This section presents the quality of administrative services using seven sub variables, the first sub variable checks whether the administrative services are effective, accurate and prompt, 4.8%(6) respondents strongly agreed, 24%(30) respondents agreed, 39.2%(49) respondents were neutral, 21.6%(27) respondents disagreed and 10.4%(13) respondents strongly disagreed. The second sub variable assesses whether there are sufficient working hours, 11.2%(14) respondents strongly agreed, 27.2%(34) respondents agreed, 35.2%(44) respondents were neutral, 16.8%(21) respondents disagreed and 9.6%(12) respondents strongly disagreed. The third sub-variable checks the availability of admin services on the university website, 4%(5) respondents strongly agreed, 16%(20) respondents agreed, 42.4%(53) respondents were neutral, 24%(30) respondents disagreed and 13.6%(17) respondents strongly disagreed. The fourth sub variable, asks about the availability of technical support for E-services, 3.2%(4) respondents strongly agreed, 12.8%(16) respondents agreed, 40.8%(51) respondents were neutral, 28%(35) respondents disagreed and 15.2%(19) respondents strongly disagreed. The fifth sub variable checks the friendliness of the administrative services, 1.6%(2) respondents strongly agreed, 17.6%(22) respondents agreed, 46.4%(58) respondents were neutral, 18.4%(23) respondents disagreed and 16%(20) respondents strongly disagreed. The sixth sub variable is used for checking the availability of advertising materials for the administrative services, 4.8%(6) respondents strongly agreed, 8%(10) respondents agreed, 40.8%(51) respondents were neutral, 29.6%(37) respondents disagreed and 16.8%(21) respondents strongly disagreed. The last sub variable assess whether there is a clear guidelines and advices,

5.6%(7) respondents strongly agreed, 18.4%(23) respondents agreed, 38.4%(48) respondents were neutral, 21.6%(27) respondents disagreed and 16%(20) respondents strongly disagreed. The administrative services scored lower rating across the board. This implies that the problem is chronic and needs immediate attention through provision of effective, accurate and prompt services. The insufficient working hours and low friendliness of admin services are major hindrances to quality of education that cannot be ignored. By looking at the average mean score value of all 7-sub variables, we can conclude that the quality of the administrative services is medium. Table 19 below shows the quality assessment on administrative services.

Table 19 Quality Assessment on Administrative Services

	SD		D		N		A		SA		Mean	SD
	F	%	F	%	F	%	F	%	F	%		
Effective, accurate and prompt services	13	10.4	27	21.6	49	39.2	30	24	6	4.8	2.912	1.0319
Sufficient working hours	12	9.6	21	16.8	44	35.2	34	27.2	14	11.2	3.136	1.1241
The availability of admin services on the university website.	17	13.6	30	24	53	42.4	20	16	5	4	2.728	1.0190
Availability of technical support for E-Services	19	15.2	35	28	51	40.8	16	12.8	4	3.2	2.608	0.9992
Friendliness	20	16	23	18.4	58	46.4	22	17.6	2	1.6	2.704	0.9921
Availability of advertising materials for the services	21	16.8	37	29.6	51	40.8	10	8	6	4.8	2.544	1.0200
Clear Guidelines and advices	20	16	27	21.6	48	38.4	23	18.4	7	5.6	2.760	1.1028
										Average Mean	**2.770**	

Source: Own survey, 2021

4.3 The Instructors Perspective

4.3.1 Participation Rate

Out of the 65 instructors involved in undergraduate education, 18 of them participated in the semi-structured interview conducted by the researcher.

4.3.2 Participant Profile

The academic rank of the instructors on duty have been summarized in the table 20 below, along with the expected tasks for each level.

Table 20 Academic Rank

Academic Rank	Quantity	Tasks
Laboratory Technician	10	Are in charge of laboratory practices
Assistant Lecturer	11	Assist in delivering tutorials
Lecturer	44	-Deliver lectures to undergraduate students -Deliver tutorials for postgraduate students -Advise undergraduate students on final year projects
Total	65	

Source: (Office of the Academic Standards and Quality Enhancement, AAU, 2020)

4.3.3 Regarding Motivation

The instructors were initially asked to identify what motivates/commits them to work at the School. Most interviewees answered student performance and activity, job security, support by other staff members, effective teaching and performance evaluation

When asked if incentives and other benefits have an influence on performance, most respondents agreed

4.3.4 Instructors' Perspective on Curriculum

The interviews were asked a semi-structured questions regarding their perspective on the current curriculum. Overwhelming number of the instructors are in agreement stating that the program provides appropriate scientific topics, and that it enhances student skills & self-capabilities. Similarly, they shared their concerns about the curriculum being in line with the requirements of the labor market. They stated that the topic needs its own independent study and that it should be one of the focus areas the School should focus on.

4.3.5 Instructors' Perspective on Staff

Next questions were forwarded concerning the currently available academic staff for the program. Again, there was a common positive consensus among the interviewees regarding academic qualifications, professional experience, academic advising and communications skills. Many of the instructors agree that there is a room for development when it comes to research activities.

4.3.6 Instructors' Perspective on Career Prospects

Most instructors are of the opinion that enhanced technical, communication and linguistic skills prepares the students for a better professional career. However, there is a strong need to improve upon the institution's links with business though job-day programs etc to increase employment opportunities. It has been suggested that University-Industry linkage office shall

be led by a qualified career professional specializing in the area as opposed to be being offered to academic staff as an administrative position. Similar suggestion has been forwarded regarding the Office of External Relations which, on paper, is tasked with sowing fruitful relations with other academic and research establishments in order to facilitate opportunities to continue studies abroad.

4.3.7 Instructors' Perspective on Infrastructure

Interviewees were asked regarding infrastructure in the context of civil engineering undergraduate program. Overwhelming majority approve that classrooms, laboratories, sport facilities, administrative offices, and spaces for cultural events were more than adequate. Most also expressed their skepticism to the quality services provided at the student lounge. Even though a lot of revamping has taken place on the space, most are of the opinion that the quality of service needs serious overhaul.

One of the most crucial issue raised by many is the need for improved computational facility. The main problem regarding computational facility is the lack of availability of relevant software. This is supported by the instructors who said there are no relevant licensed softwares at the school. This is a very big problem for researcher's who try to publish their researches on journals as most of them use cracked software for their research. This in turn reduces the motivation of both the academic staff and the students to conduct quality researches.

4.3.8 Instructors' Perspective on E-Services

Mixed responses were acquired with regard to e-services availed as part of the program. These responses range a wide spectrum starting from not being aware of the existence of e-services to that of full utilization. The School has its own website as part of the larger AAiT webpage where important announcements are made to students, academic staffs and admin staffs alike. It has been pointed out that the website lacks dynamism and user friendliness. Registration, course adding and dropping, and similar requests are effectively handled by an online information management system.

4.3.9 Instructors' Perspective on Library Services

Predominantly large number of instructors have indicated that the library service is of excellent quality especially in the context of undergraduate education. This is manifested through abundant availability of textbooks and journals, easy borrowing process, availability of services

electronically, electronic repository and e-library, sufficient space and ergonomics to sit and read, ample working hours, cooperativeness of librarians, etc.

4.3.10 Instructors' Perspective on Administrative Services

Most interviewees shied away from providing clear-cut responses to questions regarding administrative staff. Several of them simply stated that there is a room for development but failed to disclose specific areas when probed for further information. The researcher found this to be a bizarre phenomenon considering most of them did not hold back to comment vividly regarding questions on academic staffs i.e. their colleagues.

4.4 Discussion using Modified HEQAM-KAU Model

In this section, the outputs of statistical analysis conducted on the questionnaire filled by students have been fed into the modified HEQAM-KAU quality matrix. The results for each of the seven sub-variables have been individually rated. After that the combined rating of all the sub-variables has been determined using the weights assigned by the model. Then results were compared with that of qualitative data analysis outputs gathered by interviewing the instructors. Table 21 shows quality assessment matrix for modified HEQAM-KAU model.

Table 21 Quality Assessment Matrix for modified HEQAM-KAU model

No.	Main Variable	Sub Variable	Mean Score	Average Mean	Quality Rating
1	Curriculum (20.9 %)	1. The program provides appropriate scientific topics	3.792	3.62	High
		2. Curriculum is line with the requirements of the labor market	3.144		
		3. The curriculum enhances students skills and self-capabilities	3.176		
		4. The curriculum has prerequisites for the certain courses	3.984		
		5. Weekly timetable is available	4.000		
		6. Variety of elective modules are available on specialization areas	3.744		
2	Staff (18.4 %)	1. Lecturers have appropriate academic qualification	4.008	3.52	High
		2. Lecturers have appropriate professional experience	3.728		
		3. Lecturers are appropriately engaged in research activities	3.320		
		4. Faculty is cooperative and responsive	3.200		
		5. Appropriate academic advising is available	3.328		
		6. Lecturers have appropriate communication skills	3.552		
3		1. Perspective for professional career is promising	3.304	3.11	Medium
		2. AAiT's link with businesses is adequate	3.040		
		3. The program enhances technical skills for the job market	3.128		

	Career Prospect (16.9 %)	4. The program enhances communication skills for the job market	3.144		
		5. The program enhances linguistic skills for the job market	3.040		
		6. Employment opportunities are available through Internship programs	2.848		
		7. Opportunities to continue studies abroad are available	3.080		
		8. Availability of exchange programs with other institutes	3.016		
		9. Opportunities for graduate program	3.456		
4	Infrastructure (13.55%)	1. Modern and High Quality classrooms and laboratories	3.080		
		2. Catering Services	3.216		
		3. Sport facilities	2.944		
		4. Medical Facilities	3.064		
		5. High quality university admin buildings	3.112	3.04	Medium
		6. Availability of services to host social and cultural events	2.816		
		7. Students hostel	3.080		
5	E- Services (12.4%)	1. The website provides academic and admin services	3.320		
		2. Effective accurate and prompt services	3.032	3.02	Medium
		3. Prompt technical support	2.792		
		4. E- Service accessibility through different ways	2.944		
		5. E- services through social networks	3.040		
6	Library Services (10.4%)	1. Availability of textbooks and journals	4.040		
		2. Easy borrowing process	3.720		
		3. The availability of library services electronically	3.600		
		4. E-library	3.448	3.82	High
		5. Sufficient place to sit and read	3.808		
		6. Adequate/suitable working hours	4.096		
		7. Librarian cooperativeness	4.040		
7	Administrative Services (7.8%)	1. Effective, accurate and prompt services	2.912		
		2. Sufficient working hours	3.136		
		3. The availability of admin services on the university website.	2.728		
		4. Availability of technical support for E-Services	2.608	2.77	Medium
		5. Friendliness	2.704		
		6. Availability of advertising materials for the services	2.544		
		7. Clear Guidelines and advices	2.760		
			Weighted Mean	**3.34**	

Source: Own result, 2021

Based on the perspective of students the quality of education of Civil Engineering undergraduate program at the school of civil and environmental engineering has been determined to have a score of 3.34 on the modified HEQAM-KAU model. This amounts to medium overall quality. However, it is important to point out that this result is on the boundary between medium and high quality.

From the perspective of curriculum, the school/program scored 3.62, which falls in the range of high quality. This result is also corroborated by the qualitative data analysis output which resulted from the semi structured interview of instructors. Overwhelming number of the instructors are in agreement stating that the program provides appropriate scientific topics, and that it enhances student skills & self-capabilities. Similarly, they shared their concerns about the curriculum being in line with the requirements of the labor market, which is in line with the fact that the lowest score amongst the 6 sub variables is the one concerned with labor market.

Concerning staff, assessment result revealed a score of 3.52, which again falls within the range of high quality. This is consistent with the fact that there was a common positive consensus among the interviewees regarding academic qualifications, professional experience, academic advising and communications skills. Many of the instructors agree that there is a room for development when it comes to research activities. This last remark is also in line with the qualitative data output which rated the engagement of lecturers in research activities as medium.

Regarding career prospect, outcome of the interview shows most instructors are of the opinion that enhanced technical, communication and linguistic skills prepare the students for a better professional career. However, there is a strong need to improve upon the institution's links with business through job-day programs etc. to increase employment opportunities. This is substantiated by the output of quantitative analysis, which resulted in an overall score of 3.11 (medium quality rating), where the lowest point can be attributed to the sub variable "Availability of employment opportunity through Internship programs" and "Adequacy of AAiT's link with businesses"

When it comes to infrastructure, overwhelming majority of the instructors approved that classrooms, laboratories, sport facilities, administrative offices, and spaces for cultural events were more than adequate. However, results of the quantitative analysis depict another picture, where overall infrastructure has been rated to be of medium quality (3.04 overall score). This discrepancy between the opinions of students and instructors can be explained by basic expectations of both parties. This is to mean that Instructors have a bigger picture of the issue through exposure to higher postgraduate studies and researches, which enables them to make an objective assessment of rendered facilities. On the other hand, the researcher believes that students form their opinion based on their intuition and expectation from a highly reputable HEI, like Addis Ababa Institute of Technology. Therefore, the researcher has concluded that the quality of infrastructure is of acceptable quality since he bought into the line of argument

provided by the instructors due to follow up questions raised during the semi structured interview.

Both the instructors and students have stated that, e-services require a major makeover. This include diversifying accessibility of e-services through different ways including social networks, provision of effective accurate and prompt services including technical support. The two parties agreed that, registration, course adding and dropping, and similar requests are effectively handled by an online information management system. The aforementioned statements are reinforced by the output of the quantitative data analysis, which resulted in an overall quality grading of 3.02(Medium).

Predominantly large number of instructors have indicated that the library service is of excellent quality especially in the context of undergraduate education. This is manifested through abundant availability of textbooks and journals, easy borrowing process, availability of services electronically, electronic repository and e-library, sufficient space and ergonomics to sit and read, ample working hours, cooperativeness of librarians, etc. This is also validated by the quantitative data where library services scored an overall mean score of 3.82 (highest among the 7 main variables)

Administrative services scored the lowest point (2.77) in the quality analysis matrix. This is primarily attributed to very low quality score obtained from availability of advertising materials for admin services, availability of technical support for e-services, friendliness, clear guideline and advices, general availability of admin services. It is imperative to point out that this final verdict is solely based on the output of quantitative analysis since most interviewees shied away from providing clear-cut responses to questions regarding administrative staff. Several of them simply stated that there is a room for development but failed to disclose specific areas when probed for further information.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The purpose of this study was to assess the quality of education at the school of civil and environmental engineering. It investigates the education quality by using a modified HEQAM-KAU model which constitutes 7 core variables namely Curriculum, Academic Staff, Career prospect, Infrastructure, E-Services, Library services, Administrative services.
To accomplish the objective of the study, the following two basic research questions were raised and reviewed.

- What is the current level of quality of education at the School of Civil and Environmental Engineering, AAiT-AAU?
- What are the major issues that are hindrance to quality education?

To answer these questions, the study engaged a combination of qualitative and quantitative approach research method using closed questionnaire and semi structured interview. The research employed the descriptive type of research design due to the reason that this research method describes the characteristic of the phenomenon studied.

The quality analysis matrix output shows that the quality of education of Civil Engineering undergraduate program at the school of civil and environmental engineering has been determined to have an average mean score of 3.34 on the modified HEQAM-KAU model. This amounts to medium overall quality. However, it is important to point out that this result is on the boundary between medium and high quality.

Based on individual analysis of main variables at the core of the assessment model, the major issues that are hindrance to quality of education has been identified as poor administrative services, inferior E-services, gloomy career prospect.

One of the major problems raised regarding the administrative staff is their lack of willingness to assist students. Only few numbers of students, (19.2%) surveyed, rated the administrative staff’s friendliness as good. This creates a challenge for the students to consult the administrative staffs freely and to raise their issues regarding courses offered and other services.

5.2 Conclusion

Based on the information gathered during this research the following conclusions are drawn:

- The quality of education in the civil engineering program at Addis Ababa Institute of Technology (AAiT) is rated to be of medium quality on the modified HEQAM-KAU model for the sample that has been investigated.
- The overall impression on the curriculum is positive since it has been identified that the curriculum of the program provides appropriate scientific topics that enhances student skills & self-capabilities.
- The academic staff in the civil engineering program is deemed adequate with the appropriate number of staff to properly administer the program. There should be strong policy in place to encourage the academic staff to conduct research regularly. An important issue raised by the instructors regarding the academic staff is the reluctance and lack of motivation for doing enough researches in the field of civil engineering. Even if the staffs are encouraged orally, the instructors interviewed suggested that there should be a policy in place to encourage academic staff to conduct researches regularly.
- The study have revealed that enhanced technical, communication and linguistic skills prepare the students for a better professional career. However, there is a strong need to improve upon the institution's links with business through internship programs etc to increase employment opportunities.
- Major infrastructures such as classrooms, laboratories, sport facilities, administrative offices, and spaces for cultural events were more than adequate. Most also expressed their skepticism to the quality services provided at the student lounge. Even though a lot of revamping has taken place on the space, most are of the opinion that the quality of service needs serious overhaul. The lack of relevant software at the school's computational facilities is another big problem, which students and academic staffs face to conduct quality researches that can be printed in journals. The school should find a way to acquire licensed software and it should also establish computational facilities. And it advised the school prepare training secessions regarding to the relevant software's needed for the program.
- Profound improvements are required in E-Services, including diversifying accessibility of e-services through different ways including social networks, provision of effective accurate and prompt services including technical support.
- The library services has been identified that one of the strongest component. This is manifested through abundant availability of textbooks and journals, easy borrowing

process, availability of services electronically, electronic repository and e-library, sufficient space and ergonomics to sit and read, ample working hours, cooperativeness of librarians, etc.

- Administrative services has been identified as the weakest component. This is primarily attributed to very low quality score obtained from availability of advertising materials for admin services, availability of technical support for e-services, friendliness, clear guideline and advices, general availability of admin services.

5.3 Recommendations

Based on the findings from the study the researcher recommends the following

- The quality of education in the civil engineering program at Addis Ababa Institute of needs to be assessed both by an internal and external quality audit team. The assessment should include input, process and output elements.
- Even if the overall impression on the curriculum is positive, the school needs to advance its status by further improving and revising the curriculum in line with the job market.
- There should be a strong policy in place to encourage the academic staff to conduct research regularly.
- The school should devise a mechanism to increase the institution's links with business through internship programs etc to increase employment opportunities.
- Major infrastructures such as classrooms, laboratories, sport facilities, administrative offices, and spaces for cultural events and students lounge needs serious overhaul.
- The school should find a way to acquire licensed software and it should also establish computational facilities.
- Profound improvements are required in E-Services, including diversifying accessibility of e-services through different ways including social networks, provision of effective accurate and prompt services including technical support.
- The school should share best practices of the library services to other units that contribute to the overall quality of education.
- Admin services need to deeply work and address areas like availability of advertising materials for admin services, availability of technical support for e-services, friendliness, clear guideline and advices and general availability of admin services.

Further research is recommended on the following issues:

- Incorporating graduate programs to get a full picture of quality of education in the school of civil and environmental engineering in Addis Ababa Institute of Technology
- Suggesting practical intervention solutions to issues identified in this research.

The School of Civil and Environmental Engineering at AAiT-AAU do not have an organized body/unit specifically established for the purpose of quality assurance and graduates' employability that encourages major stakeholders to play their role proactively. The system was so weak that the major stakeholders were not sure when and how to involve.

There is a strong need to improve upon the institution's links with business though internship programs, which help graduates to be equipped with the required skills necessary for the Job market and increase their employment opportunities. It has been suggested that University-Industry linkage office shall be led by a qualified career professional specializing in the area as opposed to be being offered to academic staff as an administrative position. Similar suggestion has been forwarded regarding the Office of External Relations, which, on paper, is tasked with sowing fruitful relations with other academic and research establishments in order to facilitate opportunities to continue studies abroad.

REFERENCES

Adamu, A., & Addamu, A. (2013). Quality Assurance in Ethiopian Higher Education: Procedures and Practices. Procedia - Social and Behavioral Sciences, 69. Doi: 10.1016/j.sbspro.2012.12.006

Akalu, G. A. (2014). Higher Education in Ethiopia: Expansion, Quality Assurance and Institutional Autonomy. *Higher Education Quarterly Volume 68, No. 4*, 394 – 415.

Arega Yirdaw., (2016). Quality of Education in Private Higher Institutions in Ethiopia: The Role of Governance.

Alemu, T. (2018). *Model Development/Selection for Quality Management System in Ethiopian Private Higher Education Institutions: The Case of Selected Universities.* Addis Ababa: St. Mary's University.

Altbach, P., Reisberg, L., & Rumbley, L. (2009). Trends in global higher education: Tracking an academic revolution. A report prepared by the UNESCO 2009 World Conference on Higher Education, Executive Summary. Paris: UNESCO.

American Psychological Association (APA), American Educational Research Association (AERA), & National Council on Measurement in Education (NCME) (1966). Standards for educational and psychological tests and manuals. Washington, DC: APA.

Bekalu Atnafu and Maru Shete. (2004) Quality of Education in Private and Public Higher Education Institutions: A Comparative Analysis.

B De La Harpe, A Radloff, J Wyber (2000) - *Quality in Higher Education*,- Taylor & Francis

Craft, A. (2005) Quality assurance in higher education: Proceedings of an international conference Hong Kong, 1991.

E Villar, P Albertín (2010). *Studies in Higher Education*- Taylor & Francis

Ethiopian Association of Civil Engineers (EACE). (2018). *Reviewing the Quality of Civil Engineering Education and Employment Opportunities for Civil Engineers in Ethiopia.* Addis Ababa: Construction Solutions Plc.

Federal Democratic Republic Government of Ethiopia. (1994) *Education and Training Policy.* St George printing Press. Addis Ababa

Feisel, L. D. (2005). The Role of the Laboratory in Undergraduate Engineering Education. Journal of Engineering Education, 94(1), 121–. *Journal of Engineering Education, 94(1)*, 121–131

George, D., & Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon.

Gliem, Joseph A.; Gliem, Rosemary R. Midwest (2003) Research-to-Practice Conference in Adult, Continuing, and Community Education

Harman, G., & Meek, V. (2000). Repositioning quality assurance and accreditation in Australian higher education, evaluation, and investigations program. Canberra, Australia: Higher Education Division, Department of Education, Training and Youth Affairs.

Girma Gilano, S. H. (2021). Assessment of Educational Quality and Associated Factors: The Case of Arba Minch College of Health Sciences in 2017, South Ethiopia. *Education Research International*.

Hair, J.F., Money, A.H., Samouel, P. and Page, M. (2007), "Research Methods for Business", *Education + Training*, Vol. 49 No. 4, pp. 336-337. https://doi.org/10.1108/et.2007.49.4.336.2

Hicks, Owen. (2018). CURRICULUM IN HIGHER EDUCATION: CONFUSION, COMPLEXITY AND CURRENCY, in Kandlbinder, P. (Ed.) (2018). HERDSA Review of Higher Education, Vol 5, pp 5-30. Downloadable at herdsa.org.au. 5. 5-55.

Harvey, L., & Green, D. (1993). Defining quality. Assessment and Evaluation in Higher Education, 18(1), 9-34.

Harvey, L., & Newton, J. (2004). Transforming quality evaluation. Quality in Higher Education, 10(2), 149-165.

Heaton, N., McCracken, M. and Harrison, J. (2008), "Graduate recruitment and development: Sector influence on a local market/regional economy", *Education + Training*, Vol. 50 No. 4, pp. 276-288.

HERQA. (2006). *Areas of Focus for Institutional Quality Audits.* Addis Ababa: Higher Education Relevance and Quality Agency.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a Definition of Mixed Methods Research. Journal of Mixed Methods Research, 1(2), 112–133. https://doi.org/10.1177/1558689806298224

Kapur, D., & Crowley, M. (2008). *Beyond the ABCs: Higher Education and Developing Countries.* Center for Global Development.

Knight, D. B., Lattuca, L. R., Yin, A., Kremer, G., York, T., & Ro, H. K. (2012).An exploration of gender diversity in engineering programs: A curriculum and instruction-based perspective. *Journal of Women and Minorities in Science and Engineering*, *18*(1).

Kotahari, C. (2004). *Research Methodology: Methods and Techniques.* New Delhi: New Age International Publishers .

Lagrosen, S. Seyyed-Hashemi, R, & Leitner, M. (2004). Examination of the dimensions of quality in higher education. *Quality Assurance in Education, 12*(2): 61-69. https://doi.org/10.1108/09684880410536431.

Lalić, A. B. (2017). *HOW QUALITY OF HIGHER EDUCATION SHOULD BE MEASURED BY UNIVERSITY RANKINGS?* Bled School of Management.

Martin, M., & Stella, A. (2007). External quality assurance of higher education: Making choices. Paris: UNESCO-International Institute for Educational Planning.

MoE. (2006). Educational Planning and Research Division (EPRD). Addis Ababa

Noaman, A. Y., Ragab, A. H., Fayoumi, A. G., Khedra, A. M., & Madbouly, A. I. (2013). HEQAM: A Developed Higher Education Quality Assessment Model. *Federated Conference on Computer Science and Information Systems*, (pp. 739-746).

Office of the Academic Standards and Quality Enhancement, AAU. (2020). *AAU Education Statistics Annual Abstract.* Addis Ababa University.

QAAD. (2013). *Quality assurance and accreditation for higher education in Nepal.* Quality Assurance and Accreditation Division.

R., H. J. (2007). *Multivariate Data Anaysis.* New Jersey: Pearson Education, Inc.

Saketa, K. N. (2014). *QUALITY ASSURANCE PRACTICES IN ETHIOPIAN PUBLIC AND PRIVATE HIGHER EDUCATION INSTITUTIONS.* UNIVERSITY OF SOUTH AFRICA.

Schwarz, S., & Westerheijden, D. (2004). Accreditation in the framework of evaluation activities. Synopsis of the current situation and dynamics in Europe. Dordrecht: Kluwer Academic Press

Sileshi, M. (2016). *The Curriculum Development Process of the New Engineering Education Program and Its Practices in Ethiopia: The Case of Three Higher Engineering Education Institutions.* Addis Ababa: Addis Ababa University.

Stensaker, B. (2004). The transformation of organizational identities: Interpretations of policies concerning the quality of teaching and learning in Norwegian higher education. AE Enschede: CHEPS/UT.

Tadesse Regassa, T. T. (2013). Quality of Education: The Case of Jimma University. *Scientific & Academic Publishing*.

Tadesse, T. (2014). Quality Assurance in Ethiopian Higher Education: Boon or Bandwagon in Light of Quality Improvement? *JHEA/RESA Vol. 12, No. 2*, 131-157.

Taherdoost, H. (2016). *Sampling methods in research methodology; How to choose a sampling technique for research.*

Tamrat, W. (2020). The nuts and bolts of quality assurance in Ethiopian higher education: practices, pitfalls, and prospects. *Journal of Education Policy*.

UNESCO. (2010). *Engineering: Issues, challenges and opportunities for development.* Paris: UNESCO Publishing.

Vlăsceanu, L., Grünberg, L., & Pârlea, D. (2007). Quality assurance and accreditation: A glossary of basic terms and definitions. Bucharest, RO: UNESCO-CEPES.

Wariyo, L. G. (2019). Higher Education Quality Assessment in Ethiopia: A Comparative Study. *Multidisciplinary Journal for Education, Social and Technological Sciences, Vol. 7*, 1 - 31.

Wolday Amha, G. A. (2006). Business development services (BDS) in Ethiopia: Status, prospects and challenges in the micro and small enterprise sector. *International Journal of Emerging Markets*, 305-328.

World Bank Group. (2017). *Improving the Performance of Ethiopian Universities in Science and Technology: A Policy Note.* World Bank Group.

Appendix

Questionnaire

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF PROJECT MANAGEMENT

Questionnaire

Dear Respected Respondents

First, I would like to thank you for taking your time to fill this Questionnaire. My Name is Abel Tefera; currently I am a postgraduate student in project management at Saint Mary's university. As part of my course work to for the partial fulfillment of the requirement for the award of degree of master of art in project management, I am conducting a research thesis title: *Assessment of Quality of Education at the School of Civil & Environmental Engineering – AAiT using a modified HEQAM -KAU Model.*

This questionnaire is prepared to gather information perspectives of students regarding factors that attribute to quality of education at the aforementioned institution. Here, I assure you that the information obtained from this questionnaire will be used only for academic purpose and your response will be kept confidential and anonymous on the final paper. Therefore, you are kindly requested to give your response to each items/questions carefully.

I would like to deliver my deepest gratitude for you for devoting your time and energy to complete this questionnaire. Your honest and genuine response will help on the quality of the study.

Please note that you are not **required** to give your name in this questionnaire and if you face any doubts and need additional information do not hesitate to use the contact addresses mentioned below.

Best Regards
Abel Tefera
Tel - +251911741979/+251944260072
St. Mary's University

Instructions

- Mentioning your name is not mandatory
- In the multiple-choice questions, please us a tick mark (√) in the appropriate box.
- If your response is not mentioned on the given alternatives, you can write your answer, in the space provided for the option

Questionnaire for Students

Respondent Info/ Demographics

1. Current year of education

   Year 2 ☐
   Year 3 ☐
   Year 4 ☐
   Year 5 ☐
   Alumni ☐
2. Gender Male ☐ Fema ☐
3. Age range
   < 18 ☐
   18 – 21 ☐
   22 – 25 ☐
   > 25 ☐
4. Was natural science stream your first choice in secondary school?

   Yes ☐ No ☐
5. Was Addis Ababa Institute of Technology your first choice for higher education?

   Yes ☐ No ☐
6. Was civil engineering your first choice after pre-engineering semester?

   Yes ☐ No ☐

Curriculum

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

7. The program provides appropriate scientific topics

   5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐
8. Curriculum is line with the requirements of the labor market

   5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐
9. The curriculum enhances students skills and self-capabilities

   5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐
10. The curriculum has prerequisites for the certain courses

    5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐
11. Weekly timetable is available

    5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐
12. Variety of elective modules are available on specialization areas

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

Academic Staff

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

13. Lecturers have appropriate academic qualification

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

14. Lecturers have appropriate professional experience

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

15. Lecturers are appropriately engaged in research activities

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

16. Faculty is cooperative and responsive

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

17. Appropriate academic advising is available

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

18. Lecturers have appropriate communication skills

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

Career Prospect

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

19. Perspective for professional career is promising

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

20. The university (AAiT's) link with businesses is adequate

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

21. The program enhances technical skills for the job market

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

22. The program enhances communication skills for the job market

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

23. The program enhances linguistic skills for the job market

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

24. Employment opportunities are available through Internship programs

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

25. Opportunities to continue studies abroad are available

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

26. Availability of exchange programs with other institutes

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

27. Opportunities for graduate program

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

Infrastructure

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

28. Modern and High Quality classrooms and laboratories

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

29. Catering Services

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

30. Sport facilities

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

31. Medical Facilities

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

32. High quality university admin buildings

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

33. Availability of services to host social and cultural events

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

34. Students hostel

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

E-Services

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

35. The website provides academic and admin services

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

36. Effective accurate and prompt services

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

37. Prompt technical support

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

38. E- Service accessibility through different ways

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

39. E- services through social networks

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

Library Services

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

40. Availability of textbook and journals

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

41. Easy borrowing process

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

42. The availability of library services electronically

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

43. E-library

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

44. Sufficient place to sit and read

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

45. Adequate/suitable working hours

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

46. Librarian cooperativeness

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

Administrative services

(5- Strongly agree, 4- agree, 3- Neutral, 2-Disagree, 1-Strongly Disagree)

47. Effective, accurate and prompt services

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

48. Sufficient working hours

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

49. The availability of admin services on the university website.

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

50. Availability of technical support for E-Services

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

51. Friendliness

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

52. Availability of advertising materials for the services

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

53. Clear Guidelines and advice

5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐

Interview Questions

1. What motivates you to work at the School of Civil and Environmental Engineering – AAiT?
2. What are your perspectives regarding the currently in place curriculum?
    a. Does the program provide appropriate scientific topics?
    b. Is it line with the requirements of the labor market?
    c. Does it enhances student's skills and self-capabilities?
3. What do you think of your fellow academic staff?
    a. Do lecturers have appropriate academic qualification, appropriate professional experience and communication skills?
    b. Are they appropriately engaged in research activities?
    c. Is the faculty is cooperative and responsive?
    d. Do you believe appropriate academic advising is available?
4. What are your perspectives regarding career prospect of civil engineering students?
    a. Do you believe prospect of professional career is promising?
    b. Do you think AAiT's link with businesses is adequate and that employment opportunities are available through job day programs?
    c. Does the program enhances technical skills for the job market, communication skills for the job market, linguistic skills for the job market ?
    d. Are opportunities to continue studies abroad and exchange programs with other institutes? What about opportunities for graduate program?

5. What do you think of the infrastructure?
    a. In terms of Modern and High Quality classrooms and laboratories and admin buildings
    b. In terms of catering Services, sport facilities, medical facilities and availability of services to host social and cultural events

6. What are your perspectives regarding e-services?
    a. Does the website provides academic and admin services, effective accurate and prompt services?
    b. Is there prompt technical support available?
    c. Are E- Service accessible through different ways including E- services through social networks

7. What do you think of the library services?
    a. In terms of infrastructure i.e. availability of textbooks and journals, availability of library services electronically, sufficient place to sit and read
    b. In terms of services rendered i.e. easy borrowing process, adequate/suitable working hours, librarian cooperativeness
8. What do you think of administrative services?
    a. Do they provide Effective, accurate and prompt services, sufficient working hours, Friendliness?
    b. Are administration services available on the university website?
    c. In terms of Availability of technical support for E-Services, Clear Guidelines and advices?